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Composition portfolio and technical commentary

Figols Cuevas, Daniel

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Composition Portfolio and Technical Commentary

Thesis submitted for the Degree of Doctor of Philosophy

Daniel Fígols-Cuevas

King's College London

2018

Abstract

The concept of acousmatic composition has arisen as a direct consequence of the invention and availability of electroacoustic means of producing music. In this portfolio of eleven compositions, I have explored how to extend the findings of acousmatic music to create new musical gestures using timbral strategies and by combining individual musical actions into compound musical gestures with the intention of hiding the instrumental source. The aim of this process of instrumental synthesis is to create new musical objects, which will gradually foster listeners' boundaries of aural perception to the point that their attention is guided towards the process of listening itself.

In technical terms, the portfolio is the result of the combination of computer assisted composition/orchestration methods and intuitive procedures, using the performances of the pieces as the method for testing the results. Temporal Semiotic Units (TSU) are used solely as pre-compositional tools for the production of motifs and gesture.

Acknowledgments

First and foremost, I wish to thank Prof. Silvina Milstein, my supervisor, both for her support and for the enriching discussions we have had over the course of my PhD.

I also wish to extend my thanks to George Benjamin for his educational and amenable group meetings at his home and to Rob Keeley for our informal conversations, as well as his general approachability.

Since beginning my PhD I have had the great fortune to work with the Lontano Ensemble on two occasions and the two resultant recordings in my portfolio are a testament to the quality of their performance and the personal sense of musicianship of their conductor Odaline de la Martinez.

Special thanks go to the numerous musicians and ensembles that have performed my pieces presented in the portfolio, including Ensemble Diagonal, Quatuor Tana, Vertixe Sonora, Duo Denisov, Duo UMS 'n JIP, Exaudi Vocal Ensemble, Cor de noies Exaudio, Musica Qu Lacoza. Without their precious feedback, it would have been impossible to undertake such refined work on instrumental techniques.

I am deeply thankful to my partner Ilze Ikse for her patience, care, inspiration and love.

Last but not least I want to thank my parents profoundly for my musical upbringing and for their on-going unconditional support, encouragement and total empathy.

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Composition Portfolio: Contents

| Title | Year | Instrumentation | Duration | Recording |
|--------------------|-------------|--|-----------------|------------------|
| <i>Väri</i> | 2013 | for ensemble of 6 players | c5' | Yes |
| <i>Eimai</i> | 2013 | for 6 voices a cappella | c6' | Yes |
| <i>ISON</i> | 2013 | for ensemble of 5 players | c8' | Yes |
| <i>Algol</i> | 2013 | for 3 tubas | c12' | No |
| <i>Mira</i> | 2013 | for voice, recorder and live electronics | c8' | Yes |
| <i>Hach</i> | 2014 | for ensemble of 6 players | c4' | Yes |
| <i>Shi</i> | 2014 | for female voices | c4' | Yes |
| <i>Blanc Cassé</i> | 2014 | for ensemble of 12 players | c7' | Yes |
| <i>Di(e)visks</i> | 2015 | for saxophone and cello duo | c10' | Yes |
| <i>Kemuri</i> | 2015 | for piano and electronics | c8' | Yes* |
| <i>A-toms</i> | 2016 | for ensemble of 6 players | c11' | Yes |

* This piece is additionally provided with tape and click track.

CD Track Listing

1. *Väri*, Lontano Ensemble, Odaline de la Martinez; King's College London; 14 June 2013
2. *Eimai*, Exaudi Vocal Ensemble, James Weeks; Festival Manifeste, Paris; 29 June 2013
3. *ISON*, Musica QuLacoza, Hiroyuki Yamamoto; Nagoya, Japan; 14 December 2013
4. *Mira*, Duo UMS 'n JIP; Festival Mixtur Barcelona; 26 April 2013
5. *Hach*, Lontano Ensemble, Odaline de la Martinez; King's College London; 7 June 2014
6. *Shi*, Exaudio Female-Voice Choir, Júlia Sesé; Barcelona; 29 June 2014
7. *Blanc Cassé*, Vertixe Sonora, Baldur Brönnimann; Santiago de Compostela; 28 October 2014
8. *Di(e)visks*, Duo Denisov; Paris; 10 October 2015
9. *Kemuri*, studio recording version.
10. *A-toms*, Ensemble Diagonal, Rut Schereiner; Radio France, Paris; 7 June 2016
11. Tape support for *Kemuri*
12. Click track for *Kemuri*

1. Introduction

As a composer with a background in physics, an important avenue of my musical inquiry has been to deepen my understanding of the acoustic and perceptual properties of sound and how these can be applied to composition. Following my master's degree at the Paris Conservatoire and computer-assisted composition training at IRCAM¹, I have become interested in developing a personal musical language from an “acousmatic” perspective in the domain of instrumental composition. My primary aim is to obtain composite sounds via the timbral combination of various instruments and therefore the creation of a palette of hitherto unheard sonic possibilities.

1.1 Short biographical background

I was introduced to music with cello, piano and singing lessons at the early age of five. The next major step in my education was enrolling at the *Escolania de Montserrat*, an institution with more than 700 years of musical history located at the heart of an abbey at the summit of the mountain Montserrat². Here, I continued my studies in singing, the piano and the cello and was taught the fundamentals of musical composition. Singing in the abbey church twice a day, in addition to many hours of

¹ Institut de Recherche et Coordination Acoustique/Musique, Paris

² Montserrat is a mountain an hour's drive from Barcelona. Hermits have populated it since time immemorial and it has attracted artists, philosophers and religious practitioners throughout the centuries. Today, the Benedictine abbey devoted to *la Moreneta* (Black Madonna) at the summit of the mountain is the beating heart of religion in Catalonia. Since its foundation in 1025, the abbey has been home to a community of monks and a boys choir, and has been important in the furtherance of musical culture, producing illustrious composers, singers and instrumentalists.

choral rehearsal helped to develop a core knowledge of my voice as an instrument. This also increased my familiarity with sacred Catholic choral repertoire and caused me to develop a feeling of religious intimacy in association with the practice of singing.

Music has not, however, been my only passion. From my very early childhood, my family and I have been spending summer holidays in a cottage in the middle of the countryside 150km south of Barcelona, surrounded by almond and olive trees and vineyards. It was the perfect spot to observe the night sky, completely free of light-pollution. My favourite pastime became to distinguish the shape of star constellations, their names, position and stories. My fascination with the mysteries of the universe led me to study Physics at the *Universitat de Barcelona* after having completed my BSc.

For four years I combined thermodynamics, algebra, quantum mechanics and astrophysics with cello, harmony, counterpoint and piano lessons at the Conservatoire in Terrassa (near Barcelona), along with an extra dose of singing in many amateur choirs. However, after finishing my Professional Degree in cello, I realized that physics was not sufficiently personally rewarding and I decided to study composition in earnest.

My composition studies at the ESMuC (*Escola Superior de Música de Catalunya*) led me to the Paris Conservatoire where I discovered the French contemporary music scene. I also studied electroacoustic music and orchestration. However, the most defining moment in this part of my education was my experience at IRCAM, where I

developed a further knowledge of computer-assisted composition techniques and electronic music.

1.2 Previous works

Since 2007 I have been creating a portfolio in which each new composition is also a field of experimentation. I have had the opportunity to write many works for atypical combinations of instruments and have benefited from the fact that these were professionally recorded during the public performances at the Paris Conservatoire. I was also often inspired by special aural impressions, by observed and imagined sonic phenomena, which I approach with the aim of discovering infinitely fine gradations within them.

The titles of my works are in no way signposts to orient the ear, even if they might appear so at times. Having a strong preference for short titles, often containing only one word, they may refer to physics and astrophysical phenomena, poetical and philosophical ideas.

In my works composed in Paris, I explored the combinatory possibilities of instrumental and electroacoustical music (produced by computational means). The result was a series of pieces, some of them hybrid (using acoustic and electronic sources), where the aim was to dissolve the two apparently distinctive components into a coherent acoustic narrative. The culmination of those five years at the Paris Conservatoire and IRCAM was the composition of *Kaala* for a large ensemble of twenty musicians and live electronics. I generated a comprehensive system to perform

synthesized sounds combined with pre-recorded samples in real time with the use of Karlax™,³ a wireless MIDI interface developed in Paris by DaFact, with whom I collaborated in 2012. The compositional aim was to blend the music performed by the ensemble of acoustical instruments seamlessly with the electronic sounds produced by the Karlax performer.

1.3 Brief outline of the compositions

As mentioned in the abstract, my portfolio, as a whole, attempts to address two major concerns: a) modes of musical gesture development using Temporal Semiotic Units and b) the pursuit of orchestration/instrumentation techniques aiming to a timbral composition (“acousmatic”⁴). Most of the pieces were inspired by physical, poetic or philosophical narratives.

The portfolio comprises eleven works of diverse instrumental configurations and durations composed during the period January 2013 – July 2016.

Väri (2013)

This short experimental piece for an ensemble of 6 players was written for Lontano Ensemble and performed in a workshop at King’s College London. This is a first attempt at using Temporal Semiotic Units (henceforth TSU) as composition tools.

Eimai (2013)

³ For more information visit: <http://www.dafact.com>

⁴ I will use “acousmatic composition” to describe my approach to timbral composition: the use of orchestration tools aiming to hide the constitutive elements of the resultant compound sound. This will be discussed later in depth.

This piece was composed for Exaudi Vocal Ensemble for 6 voices *a cappella* and performed at the Manifest summer academy in Paris. In this six-minute-long vocal work, I explore the instrumental aspects of the voice.

ISON (2013)

The formal structure of this piece echoes the different stages of the comet ISON in its close encounter with the sun. It was commissioned by the Japanese ensemble Musica Qu Lacosa (an ensemble of 5 musicians) and performed in Nagoya (Japan), where I had the opportunity to attend to the première.

Algol (2013)

This piece for 3 tubas (euphonium and 2 tubas) was dedicated to a very good tuba player and friend who wanted to include it in the recital for his master's degree at the Paris Conservatoire. The unusual combination of two bass tubas plus the euphonium became the ideal playground for rhythmic and gestural figurations between equally weighted voices.

Mira (2013)

This piece was commissioned by the Swiss duo UMS 'n JIP, one of the most prolific contemporary duos in Europe with a command of a wide range of extended techniques. On this occasion, analogous to the binary star system (Mira), the piece shows an antagonised dialectic between the two parts, each of them ending in extreme ranges.

Hach (2014)

Hach is my second attempt to use TSUs for compositional purposes. It is for an ensemble of 6 players and, as the previous piece *Väri*, was composed for a workshop with the Lontano Ensemble at King's College London. It can be seen as a development of my ideas regarding the use of TSUs employed in *Väri*. This time TSUs have been used in a less sequential way and more as guiding reference, or in other words, less systematically.

Shī (2014)

This piece was inspired by a Chinese poem using only the phoneme /ʃi/. It was commissioned by a Catalan female-voice choir, *Cor Exaudio*, and it explores the possibilities of developing a musical discourse through the use of limited textual material.

Blanc Cassé (2014)

This composition was inspired by El Greco's use of “off white” in his paintings. It was written for the Vertixe Sonora ensemble, a group of 12 players and it is the largest ensemble piece in terms of number of instruments in this portfolio.

Di(e)visks (2015)

Di(e)visks was written for an outstanding saxophone player and friend from Paris. After working together a few years ago on a piece for saxophone solo and ensemble, I composed this duo (for saxophone and cello), based on his extraordinary skills and

musicianship. It explores the boundaries of “acousmatic composition” with restricted instrumental resources.

Kemuri (2015)

Kemuri was the result of the collaboration with a Catalan video artist Isaki Lacuesta. After I composed the piece, he added the video track, which follows the structure of the music. This piece is provided here with a tape part that emulates the environment of real-time electronics.

A-toms (2016)

The last piece in this portfolio is for an ensemble of 6 players and it was commissioned and recorded by Radio France in Paris. The commission stipulated a structure of 5 short movements (2 minutes each) and it summarizes my current musical concerns in terms of timbral and “acousmatic composition”.

2. On timbral instrumental music

2.1 Origins

By the mid-to-late nineteenth century, French composers were beginning to develop a particular interest in the timbral possibilities of the orchestra. Under the influence of Tchaikovsky and Wagner, composers such as Debussy, Berlioz and Ravel, in particular, they increasingly saw musical material in textural terms and consequently they developed new ways of combining the orchestral instruments using their timbral potential. Ravel’s melodic interest can often be reduced to simple intervallic motives

that counterbalance his embellished use of harmony and instrumentation. Sharing impressionist composers' interest for sound, Grisey and Murail defined a technical language in the 1970s, known as "spectral music", a term coined by Dufourt.⁵ In their practice, compositional decisions are informed by sonographic representations and mathematical analyses of sonic spectra. The spectral approach focuses on manipulating the spectral features, interconnecting them, and transforming them. In their approach, computer-based sound analysis and representations of audio signals are treated as being analogous to timbral representation of sound. Yet Murail has described spectral music as an aesthetic rather than a style, or an attitude rather than a set of techniques. Fineberg concluded that "music is ultimately sound evolving in time".⁶

As a result of such influences, a whole generation of composers, the "post-spectral", flourished in France, in German-speaking countries and in Italy. During my time in Paris, my compositional interests were heavily informed by the aesthetics of composers from this generation: Saariaho, Maresz, Furrer and Billone. In my opinion, the last two share an expressionist approach to acoustic phenomena. I personally adhere to the aesthetics of this "post-spectral" generation, as I share their fascination with sound manipulation strategies.

⁵ Dufourt, '*Musique spectrale: pour une pratique des formes de l'énergie*' (1981), Bicéphale, no.3, 85–89.

⁶ Fineberg, (ed.). 2000b. *Spectral Music: Aesthetics and Music*. Amsterdam, Netherlands: Overseas Publishers Association. Constituting *Contemporary Music Review* 19, no. 3.

Pierre Boulez founded the *Institut de Recherche et Coordination Acoustique/Musique* (IRCAM) in Paris in 1969 to investigate the relationship between acoustics and music. IRCAM has been engaged with computer-assisted tools, particularly live-electronics, orchestration, sound analysis and synthesis, sound spatialisation and motion caption. Most of the technologies developed at IRCAM are real-time oriented, in a clear opposition with the postulates of the *musique concrète* of the *Groupe de Recherche Musicale* (GRM) created by Pierre Schaeffer ten years earlier. During my master's in composition at the Paris Conservatoire in collaboration with IRCAM, I became very interested in computer-assisted composition and orchestration techniques, using tools such as Open Music and Orchids. However, during my PhD studies at King's College London under the guidance of Silvina Milstein, I have been encouraged to orient my compositional strategies towards a more pitch-oriented methodology, with stronger awareness of harmonic implications, and thus the use of these computer-assisted tools, even if still present, has been reduced significantly.

2.2 Music: an art of time?

When it is said that music is an art of time, one generally has in mind matters of form, i.e., the control of certain features of the temporal ordering of sounds for musical perception using, in the first instance, the sound's duration. Painting is also rooted in a physical substrate, which may be safely assumed to persist indefinitely and unchanged, certainly beyond the duration of even the longest period of aesthetic

contemplation. In the case of musical sounds, it is the normal state of affairs that, as with many sounds, we are privy to a sound's existence from inception to cessation.⁷

Time is intrinsically expressed in the arts through gestures, which are changes of shape, density, colour, frequency and rhythm. The key difference between the different arts resides in the material employed, which in the widest definition of the term is the collection of parameters that can evolve in time. It is in such gestural domains that TSUs operate.

2.3 Use of Temporal Semiotic Units in composition

Musical semiotic analysis aims to discover meaning in music within a three-fold structure. According to Molino's terminology⁸ they are the poietic level, the aesthetic level and the neutral level.

The poietic level describes the creation of a symbolic form and the production strategies of the composer.

The aesthetic level refers to the reception strategies put in action by the listener that allows them to attribute meaning.

The neutral level pertains the work in its physical form, i.e. the scores and recordings.

⁷ Souriau, "Time in the Plastic Arts", *Journal of Aesthetics and Art Criticism*, VII (1949), 294-307.

⁸ Molino, "*Fait musical et sémiologie de la musique*", *Musique en jeu* 17, 1975, p.37-62

However, we cannot reduce musical semiotics to the immediate relation between a symbol and its meaning: a pragmatic approach –in this case the consideration of the symbol in the frame where it becomes fully active – is necessary. There is the symbolic object and the multiple meanings given by the listener. Therefore, there is not a strictly unique musical meaning but a network of significations, related with the emotional past experience of the listener, who engages in each instance with different strategies. These strategies are conditioned by individual long-term memory, personal musical habits and cultural tradition. We have sets of expectations that are constantly confronted with each new musical experience.

On the aesthetic level we could also argue that musical sound is produced by a human gesture: an oriented corporal movement not only in space, but also in time. We tend to relate sound to movement, as analogously, at the beginning of any musical action there is the activity which produces the sound, i.e. the movement of a bow on a string, the air blown into a tube, a hand plucking a string. Conversely, music unveils through sound the movement originally produced. Musical listening is organised by kinetic representations which assist the act of decoding the meaning of what is heard. Gesture and movement are central to the representation of music. The gesture which produces the sound has a certain “quality” and a certain “quantity” of energy articulated throughout time. A gesture is therefore characterised by its own energetic profile. I am using the term energy here in a broad sense, also evoking notions of the kinetic energy of a system of multiple elements or even a potential energy of forces applied to a system. In general terms, sound can be described by the

variation of energy in the axis of dynamics (amplitude) but also in the axis of pitch (frequency). On the other hand, the quality of energy determines whether this is conserved or altered. Energy can be accumulated (in an elastic stretching), released, contracted or retained (like in a stopping process). These variations of energy in sound are presented as “gestural surrogates” – a term used by Smalley in his “spectromorphological” approach to electroacoustic music.⁹

These gestural surrogates can be studied from the perspective of semiotics. Delalande¹⁰ (INA-GRM, Paris) also insists on the fact that music should not be studied as a musical object in itself, but in terms of a dialectic relation between object and subject. The pertinence of an analysis can only be validated by observed behaviour. This is why his semiotic analysis teaching programme prioritises listening practices (“listening-types”) that guide the perception of the musical work in a clear direction.

In that specific domain, and as a continuation of Schaeffer’s work, the MIM¹¹ also directed its efforts towards semiotic analysis: this resulted in a theory of what they call Temporal Semiotic Units (TSUs). These are sonic figures or musical segments that, even when taken out of their musical context, have a clear temporal dimension due to their kinetic and morphological structure: different energetic configurations attribute them specific causal implications and therefore a particular expressive direction.

⁹ Smalley, “Spectro-morphology and Structuring Processes”, *The Language of Electroacoustic Music*, New York, MacMillan Press, 1986, p.61-93.

¹⁰ Delalande, “L’analyse musicale, discipline expérimentale ?” *Analyse musicale* 23, 1991, p. 11-20

¹¹ Laboratoire Musique et Informatique de Marseille, France.

Their characterisation is the result of aesthetic experiences arising from listening to musical works in order to select and classify sonic examples following the criteria of “temporal signification”. We stand in a framework where our attention is fixed on a particular reception process, it is focused on the perception of time in music. The difficulty of studying time in music comes from the fact that this dimension remains abstract: we perceive time through something that changes, or on the contrary, something that endures, but we still need “something” that needs to be enclosed with time and acquire a temporal signification. Time is only accessible through variations of sonic parameters, on the basis of morphological features.

TSUs may be considered as archetypical representations of “family resemblance” with natural temporal patterns. They do not relate to a musical phenomenon at an acoustic level, but point to its intentionality, which makes this model stimulating and fruitful in dealing with complex musical contexts. The universality of the TSUs make them appropriate for the semiotic analysis not only of art forms such as dance, video and the performing arts, but also the visual arts, sculpture or even architecture, with the potential of becoming a *lingua franca* between arts when used as tool of production.

TSUs are particularly helpful in musicology and musical education, especially in the domain of electro-acoustic composition, where the parameters used in traditional analysis (melody, rhythm, harmony) tend to fall short. They are, though, scarcely used in the domain of instrumental composition. This portfolio of compositions aims,

in part, to explore the extent that the use of TSUs can provide effective new ways of approaching instrumental compositional strategies.

2.4 Brief description of TSUs

According to the MIM¹² classification, the full set of Temporal Semiotic Units is formed by 19 units (see fig. 1), which can be grouped under many criteria. The most useful classification is as two subsets defined by their temporal evolution, that is into those which are temporally bounded and those which are temporally unbounded. Each of the units can be described semantically, through an explanation of the actual acoustical perception (form), and morphologically, by their inner parameters and constitution in phases (structure). A symbolical representation of the 19 TSUs is shown in fig. 1.¹³




















| | | | | | | | | | | | |
|---|---|---|---|---|---|---|--|---|---|---|---|
|  |  |  |  |  |  |  | | | | | |
| Momentum | Falling | Stretching | Halting | Contraction - Extension | Suspension / Interrogation | Inertia | | | | | |
|  |  |  |  |  |  |  |  |  |  |  |  |
| Moving Forward | Heaviness | Inexorable Trajectory | Obsessive | Wave-like | Turning | Stationary | Unassuaged | Floating | Suspended | By divergence | Excess of Information |

fig. 1

2.4.1 TSUs temporally bounded

These are short (between 1 and 5 sec.), structured in very short steps or phases and temporally delimited with a restricted total duration.

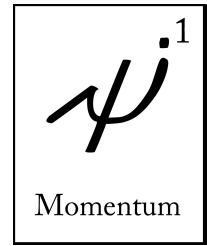
¹² Laboratoire Musique et Informatique de Marseille. “Unités Sémiotiques Temporelles”. Marseille, 1996

¹³ Rousset, *Vers une sémiotique générale du temps dans les arts*, IRCAM / Editions Delatour, 2008, pp. 325-334.

Momentum

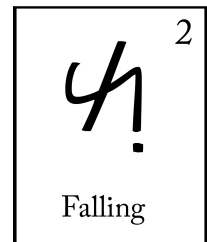
Projected from a starting point, a potential energy is released. The main musical parameter is intensity and it consists of 3 phases:

1. Short or globally uniform sound.
2. Short exponential increase in intensity.
3. Decrease of intensity or silence.

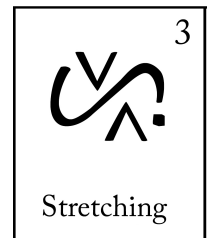
**Falling**

Potential energy is converted into kinetic energy. It consists of 2 phases:

1. Globally uniform.
2. Accelerated movement.

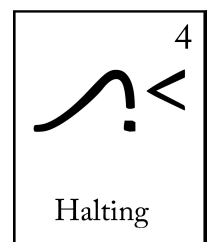
**Stretching**

This could be described as the process of approaching a maximum point of effort. Musically, it can be achieved by a generally uniform material, at a slow temporal pace, with the increase of at least one morphological variable (pitch or intensity). The global energy also increases and the movement is stalled by deformation.

**Halting**

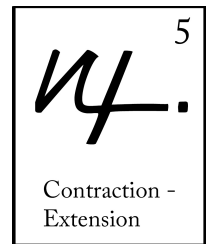
A process is suddenly overturned until it stops. It consists of 2 phases:

1. Globally uniform.
2. Decelerated movement.



Contraction-Extension

Compressed material extends towards a relaxed state. It consists of 2 phases:

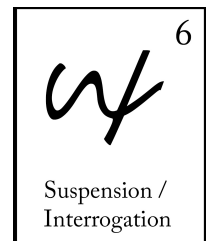


1. Acceleration towards an increase of intensity, a dense texture or events closely spaced in time.
2. Globally uniform, with stable global energy.

Note that there is a sudden discontinuity between phases.

Suspension-Interrogation

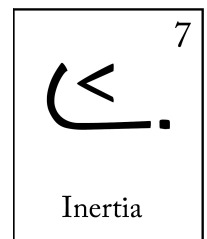
This unit represents an abrupt interruption on a fixed point. It consists of 2 phases:



1. Any process.
2. Short pause.

Inertia

Process of progressive declining until cessation. It consists of a constant decrease in intensity or musical activity till dissolution.



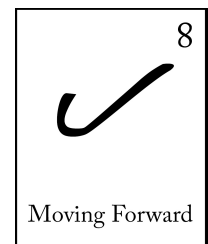
2.4.2 TSUs temporally unbounded

Temporally unbounded units have an undefined duration and are repeated in cells or defined by stable parameters. Note that some have similar shared properties, such as repetition or steadiness.

Moving forward

This is defined by a regular propulsive impulse. Energy and direction are constantly renewed in repeated cell patterns without interruption.

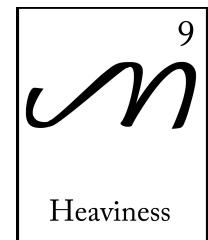
The cell usually contains an accent.



Heaviness

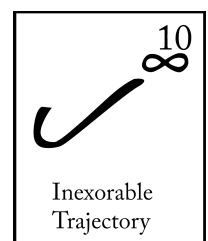
This can be described as the difficulty to advance due to the vertical pull of gravity. It consists of a repeated cell of a variable duration and contains an accent and a crescendo at the beginning of each reprise of

the cell; each accent renews the kinetic energy. The temporal pace is quite slow.



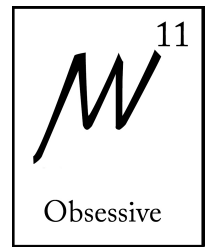
Inexorable trajectory

The trajectory is a never-ending process and one or more variables have their levels of energy renewed constantly.

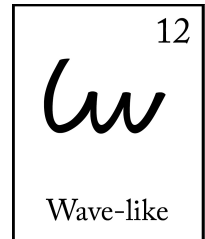


Obsessive

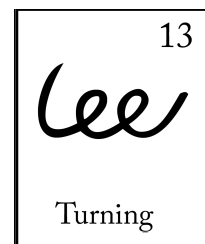
An insistent repetition of a cell in pulsed time with a renewal of energy on each iteration.

***Wavelike***

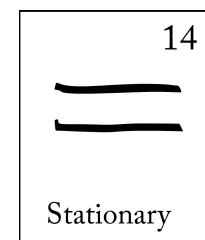
A repeated pattern of ebb and flow: a repetition of a sound in a delta pattern in which energy increases and decreases. The delta shape can be applied to different morphological criteria. The temporal pace is, however, rather slow.

***Turning***

This can be pictured as an animated object turning around itself or in space. Musically, it can be realised by a continuously repeated cell in a delta pattern: accelerating and slowing down, crescendo-diminuendo, and with an accent at the end of each crescendo. The sound pattern, however, must be irregular.

***Stationary***

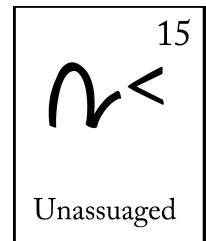
This TSU gives the impression of treading, a sense of continuity. Despite the fact that there is constant internal activity, on the global level we perceive that nothing advances. It can be described musically as a slow pace with a potential energy that is globally stable. Different configurations are possible: a) Sonic elements are relatively short, diverse, scattered and non-structured, b) a little



evolutionary frame, c) a more or less varied repeated cell, or d) a high density of multiple elements, contradictory and overlapping.

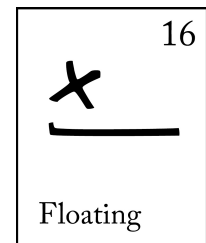
Unassuaged

This TSU gives the impression of something wanting to start moving but not succeeding. Musically, it can be realised by a repetition of an unsuccessful departing gesture.



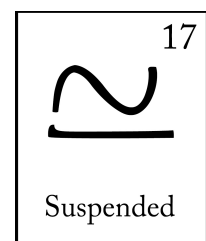
Floating

This consists of a random occurrence of sound events with a feeling of continuance, distributed in time, giving the impression of a linear flow, materialized over a uniform background. It can be initiated by a slow temporal pace, sound-off events, which follow one another without forming structures on top of a smooth uniform background without any pulsation. This background can be implied or silent.



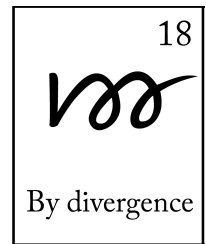
Suspended

This TSU describes the impression of simply being, of floating in space without a clear direction. A balance of forces gives a sensation of immobility, of hesitant expectation. Musically, it consists of a repeated formula almost without variation and in a slow temporal pace the sound material and events of which evolve slowly.

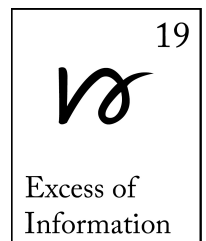


Without direction by divergence

This can be pictured as successive contrary directions, giving a global impression of immobility. It consists of fairly short successive stages, offering different organizational structures. The divergent directions of each structure are successive and non-overlapping, but the energy remains globally uniform and in potential stasis.

***Without direction by excess of information***

This TSU shows an apparent independence of the diverse elements constituting the texture. The multiplicity of elements creates a saturation of information. It can be realised musically by multiple elements, quite short and diverse, often overlapping each other.

**2.5 Use of TSU to structure musical form**

The collection of Temporal Semiotic Units can be conceived as a palette of musical gestures at the service of the composer. They can be chosen and used as building blocks or as a source for inspiration. The main benefit of using TSUs for composing is that they imply energetic and dynamic parameters, constituting an intermediate level between musical perception and the score, what Molino calls the “poietic level”. The musical structure can then be constructed by juxtaposing and/or piling layers of material built following TSU archetypes. Some of the units may determine the

surface of the texture, i.e. *Wavelike* or *Turning*, and others become structural and more clearly perceptible, i.e. *Obsessive* or *Heaviness*.

2.5.1 Case Study: *Väri*

Väri is my first attempt to use TSU in this portfolio. Its global structure consists of two overlapping a-synchronic processes; first, a harmonic interpolation between pivot chords A-B-C-D-E and second, the deployment of various gestures/characters (TSUs) into sections.

For *Väri*, the seven TSUs which fitted my purpose were: *Moving forward*, *Heaviness*, *Contraction/Extension*, *Suspension*, *Floating*, *Wavelike* and *Suspension/Interrogation*. They have been set into each section of the piece, consequently determining their individual forms and providing the character intended. We can also observe that the energy levels decrease throughout the duration of the piece, starting with *Heaviness* and using repetition towards lower levels for *Suspended*, with a quiet and peaceful ending.

The use of TSU in composition can also be compared to following a recipe; using each unit as a particular ingredient to add to the global taste of the dish. In musical terms, it means TSUs might become pre-compositional models to help shape the musical material and texture, following the needs of the composer.

In the case of *Väri*, they are employed to materialise the gestures that constitute the different sections and subsections of the piece: A>B, B>C, C>D, D>E.

○ **Section A>B**

In this first section, I decided to start with the TSU *Heaviness* and its characteristic profile of hefty tutti chords repeated in sequence. On this occasion, I found it appropriate to use an ADSR contour (Attack-Decay-Sustain-Release) for the repeated cell (bars 1-4) with an inner granulation (minor/major third trills). The cells become progressively shorter and, after that, an accentuated and gradually time-compressed and pitch-expanded process, stressing our attention towards bar 13, where pivot chord B is reached.

The musical score for 'TSU Heaviness' is presented in a 12-measure section, divided into three measures of 4 measures each. The time signature changes from 5/4 to 4/4 to 3/4. The instruments and their parts are as follows:

- Clarinet in B \flat (Bass Clarinet):** Plays a melodic line with trills and slurs, marked with *sfz* and *pp*.
- Trumpet in C:** Plays a melodic line with trills and slurs, marked with *sfz* and *pp*.
- Horn in F:** Plays a rhythmic pattern with trills and slurs, marked with *sfz* and *pp*.
- Trombone:** Plays a rhythmic pattern with trills and slurs, marked with *sfz* and *pp*.
- Piano:** Plays a rhythmic pattern with trills and slurs, marked with *ff* and *mp*.
- Vibraphone/Tam-tam:** Plays a rhythmic pattern with trills and slurs, marked with *f > p* and *ppp*.

The score includes various musical notations such as trills, slurs, and dynamic markings (*sfz*, *pp*, *ppp*, *ff*, *mp*, *f > p*) to indicate the performance style.

fig. 2 - TSU Heaviness

○ **Section B>C**

This section contains a progressive acceleration and compression of the material in various steps. TSUs *Moving forward* (starting in bar 13, see fig. 3) and *Contraction-Extension* are used to push the flow towards the next section.

fig. 3 - TSU moving forward

Pivot chord B is firstly being deployed using a “slow trill”, recalling the minor/major thirds trills from the first bars of the piece, but this time in an interwoven manner. In bars 21-22, 23-24 (fig. 4) we observe contracting and dilating rhythms (*Contraction-Extension*). The width of the chords is progressively diminished until arrival on the chord C, at letter C.

From this point, the tempo acceleration and the reduction of the length of the bars conducts the attention of the audience towards letter D, where pivot chord C is reached with its very compact, almost clustered colour.

fig. 4 – TSU Contraction-Expansion

- **Section C>D**

This section combines static and melodic textures. Here I chose to use the TSU *Floating* (see fig. 5), *Wavelike* and *Moving forward* towards the end of the section. Short descending melodic fragments evolve from a motivic texture based on the beginning of the piece through a dialogue between the clarinet and trumpet. However, this process does not last long, only 11 bars, and culminates with the frozen section D>E.

4/4 $\text{♩} = 60$ **D**

33 34 35 36

B♭ Cl. *mp* *muta Bass Clarinet*

C Tpt. *p* *pp* *gliss.* *gliss.* *p* *mp* *pp*

Hn. *p* *gliss.* *gliss.* *pp* *p*

Tbn. *p* *pp* *p* *pp*

Pno. *pp* *tr.* *ppp* *ppp*

Vib. *pp* *ppp* *take bows* *poss.* *Bows* *p*

accel.

fig. 5 – TSU Floating

○ **Section D>E**

This is a very calm and quiet section. We start with long notes interrupted by percussive strokes from the piano, vibraphone, horn and trumpet. Later, from letter F onward, we have pentatonic ascending scales in the trumpet, piano and vibraphone in a resonant frame with long steady notes being contrasted now only by pizzicato strokes in the piano. These strokes will remain until the end of the piece elongated. A final tam-tam hit definitively opens the “space” to a maximum extent.

2.5.2 Case study: *Hach*

My second piece written likewise for the Lontano Ensemble is short in duration. Its title *Hach* is a word in the Ladino language and means “cross”.¹⁴

On this occasion, I wanted to explore a less strict use of TSUs. The structure of the piece is very clear, direct and fragmented. Harmonic material has been strongly limited in order to experiment only with rhythmic and timbral configurations. Fermata bars function as signposts, stopping the musical flow of the more digressive sections. However, every fermata is not completely static; the clarinet emerges from the silence to create a link with the first beat into the next section.

As shown in Table 1, fermata stops (F1, F2, F3, ...) are found in every other section.

| Section | Bars | Tempo | Duration | Character / Dominant TSU |
|---------|-------|-------|----------|---|
| F1 | 1 | - | 5s | Attack - Resonance |
| I | 2 - 4 | 70 | 9s | <i>Suspended + Heaviness</i> |
| F2 | 5 | - | 10s | Attack - Resonance |
| II | 6-16 | 70 | 30s | <i>Suspended + Heaviness</i> in rhythmical patterns |
| F3 | 17 | - | 7s | Attack - Trembling resonance |
| III (A) | 18-25 | 70 | 21s | <i>Contraction-Extension</i> |
| F4 | 26 | - | 9s | Attack - Trembling resonance - <i>Suspended</i> |
| IV(B) | 27-38 | 80 | 28s | Hectic, <i>Obsessive + Turning</i> |
| V(C) | 39-45 | 60 | 25s | Agitated, <i>Moving forward, Turning</i> |
| F5(D) | 46 | - | 13s | Expectation - <i>Suspended</i> |
| VI | 47-58 | 50 | 60s | Glacial - <i>Suspended</i> |
| F6 | 59 | - | 5s | Attack - Resonance |

Table 1

¹⁴ Ladino derives from medieval Spanish with influences from languages such as Aragonese, Astur-leonese, Catalan, Galician-Portuguese and Mozarabic. This language is still being used by Sephardi communities around the world, and is recognised as a minority language in Israel, France, Turkey and Bosnia & Herzegovina.

The fermatas are all played tutti and act as punctuation marks. However, in sections I, II and III we observe that every bar has also its own closure.

All fermatas are accentuated on the first beat. The pulsation is given by the double bass and the rest of the instruments arrive or begin their activity on the notes in its part marked ***sfz***.

Fig. 6 shows an example of the combination of TSUs *Suspended* + *Heaviness*. This idea is imitated until bar 27 and the principal gesture for the first 2 minutes of music.

Fl. $\sim 5''$ $\sim 10''$

B. Cl. $\sim 8''$ p

Cym. d.s. $\sim 10''$

Crt. mp

Vib. $\sim 10''$

Hp. $\sim 10''$

Vln. $\textcircled{\text{SP}}$ $\sim 10''$ $\textcircled{\text{MST}}$

D.B. $\textcircled{\text{III.}}$ p

Fig. 6 - TSU Suspended + Heaviness

Fig. 7 shows the combination of the TSU *Suspended*, prolonged from the previous section, alongside *Turning* in the flute and bass clarinet and *Obsessive* in the violin and double bass parts. The character of the string parts gradually modulates towards what could be considered to be the TSU *Moving forward*. The bass clarinet acts as TSU *Turning* with its undulating and accented melodic line.

The main idea of this piece can be summarised as one of pulsating mobility with inner ornamental trembling figures.

The musical score for Figure 7 is divided into four measures with time signatures 2/4, 12/16, 2/4, and 6/8. The instruments and their parts are as follows:

- Flute (Fl.)**: Features a melodic line with triplets and accents, labeled "TSU Turning".
- Bass Clarinet (B. Cl.)**: Features a melodic line with triplets and accents, labeled "TSU Turning".
- Cymbal (Cym.)**: Features a melodic line with triplets and accents, labeled "TSU Turning".
- Clarinet (Crt.)**: Features a melodic line with triplets and accents, labeled "TSU Turning".
- Vibraphone (Vib.)**: Features a melodic line with triplets and accents, labeled "TSU Turning".
- Harpsichord (Hp.)**: Features a melodic line with triplets and accents, labeled "TSU Suspended".
- Violin (Vln.)**: Features a melodic line with triplets and accents, labeled "TSU Obsessive".
- Double Bass (D.B.)**: Features a melodic line with triplets and accents, labeled "TSU Obsessive".

The score includes various musical notations such as triplets, accents, and dynamic markings (e.g., *sfz*, *mf*, *ppp*, *p*, *f*). The overall character is one of pulsating mobility with inner ornamental trembling figures.

fig. 7 - TSU Turning + Obsessive + Suspended

This pulse accelerates until section B (tempo 80), where the hectic character is only stopped at bar 36 when the double bass and the violin begin to build an ascending combined line that culminates at bar 45 and lands onto fermata F5, with contrasting a ***pp*** (almost silence) and thin texture.

The last section, TSU *Suspended* shown in fig. 8, is a reaction to the previous frenetic motion and consists of 60 seconds of sound at a low volume in a homogeneous and static atmosphere that acts to conclude the piece.

The musical score for 'TSU Suspended' is presented for eight instruments: Flute (Fl.), Bassoon (B. Cl.), Cymbal (Cym.), Clarinet (Crt.), Vibraphone (Vib.), Harp (Hp.), Violin (Vln.), and Double Bass (D.B.). The score begins at measure 47, marked with a 5/4 time signature and a tempo of 50 (♩ = 50). The Flute, Bassoon, and Clarinet parts feature long, sustained notes with dynamic markings of *pp*, *p*, and *pp*. The Cymbal part is marked *arco*. The Vibraphone part has a *pp* marking. The Harp part is mostly silent. The Violin part includes a *pp < mf >* marking, a *gliss.* (glissando) instruction, and a *mp* (mezzo-piano) marking. The Double Bass part features a *Multiphonic* instruction and a *mp* marking. The score is divided into three sections labeled I, II, and III.

fig. 8 - TSU Suspended

2.6 Use of Open Music for harmonic material production

Open Music is a CAC environment developed at IRCAM by the Music Representations Group and consists of a set of tools used to manipulate symbolic musical structures, such as pitch fields and rhythmic trees. It is particularly useful for musical algorithm computation because it can handle complex and long sets of pitches and rhythms, which they can be represented by lists of numbers (OM is in fact a graphic user interface based on LISP language).

2.6.1 Case study: *Väri*

The first piece composed explicitly for this portfolio is *Väri*, for small ensemble, performed by the Lontano Ensemble in a workshop at King's College, London. This short piece uses Open Music for the creation of harmonic material.

For *Väri*, my interest was focused on the creation of a slow continuous change of harmonic density (variation of colour) throughout the piece. The title of the piece reflects this as “väri” means “colour” in Finnish and its spelling is similar to the English word “vary”. The composition of this piece was an opportunity to explore the possibilities of instrumental configurations and motivic elaboration within the boundaries of a strict harmonic field. This strong restriction also led me to a new approach to musical material guided by the systematic assumptions of TSUs.

The harmonic trajectory, that is, the grid of pitches used in the piece, was built algorithmically, interpolating five chords, labelled A to E, each of them containing

seven pitches. Interpolation is calculated by giving two chords with the same number of notes (7 in this case), a number of steps and an index ($i < 0$; exponential , $i = 0$; linear , $i > 0$; logarithmical), as shown in fig. 9. The transition from a more compact chord, such as A, to a wider chord, in this case B, results in a bass line which ascends by small steps of the order of the quarter tones and for inner voices larger intervals, to the extent of thirds for the top voice. The result of such a progression is a set of chords that gradually mutates from the first harmonic configuration to the second with detuned harmonies in between acting as shades of colour.

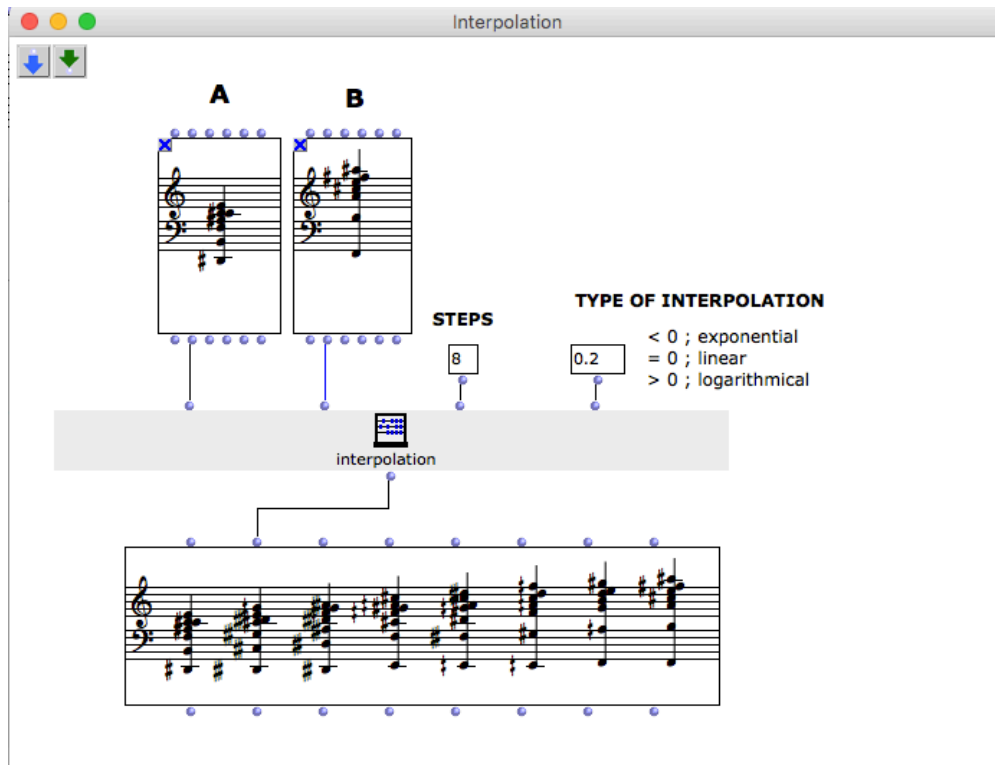


fig. 9

The chosen chords, as shown in fig. 10, have a variable extension ranging from 12 semitones (one octave), in the case of chord C, to 57 semitones (4 octaves plus a major sixth) for the last chord of the piece, chord E. The distribution of pitches within each chord has been constructed to leave larger gaps towards the lower register and

smaller ones towards the upper, in a clear correspondence with the acoustic pattern of partials in harmonic sounds. All the pivot chords have three pitches in common between adjacent chords, one of which, B natural, or pitch class 11, is always present.

The figure shows five pivot chords labeled A, B, C, D, and E. Each chord is represented by a piano-style musical notation with a treble and bass staff. Below the notation, the common pitches between adjacent chords are listed: [4,5,11] between A and B, [4,6,11] between B and C, [4,7,11] between C and D, and [11] between D and E. Below these, the pitch class sets for each chord are listed: [10,11,0,1,3,4,5] for A, [9,11,1,4,5,6] for B, [7,10,11,3,4,6] for C, [9,11,4,7] for D, and [6,8,10,11,0,1,3] for E.

Common pitches: [4,5,11] [4,6,11] [4,7,11] [11]

Pitch class set: [10,11,0,1,3,4,5] [9,11,1,4,5,6] [7,10,11,3,4,6] [9,11,4,7] [6,8,10,11,0,1,3]

fig. 10 – Pivot chords

The overall harmonic structure is the outcome of linear, exponential and logarithmic interpolations between subsequent pairs of chords, $A > B$, $B > C$, $C > D$ and $D > E$ that form the basic sections of the piece. This procedure produces intermediate chords with pitches approximated to the nearest quarter tone. A variable number of steps in every subsequence (8, 12, 10, 12) gives a total of 39 chords which constitute the overall harmonic structure shown in fig. 11 as a result of the OM patch shown in fig. 12.

The figure shows a sequence of 39 chords, numbered 1 to 39, arranged in two rows. The first row contains chords 1 through 19, and the second row contains chords 19 through 39. The chords are grouped into five sections labeled A, B, C, D, and E. Section A includes chords 1-8, B includes 9-12, C includes 13-18, D includes 19-30, and E includes 31-39. The notation is piano-style with treble and bass staves, showing complex harmonic structures with many notes.

fig. 11 - Harmony for Väre

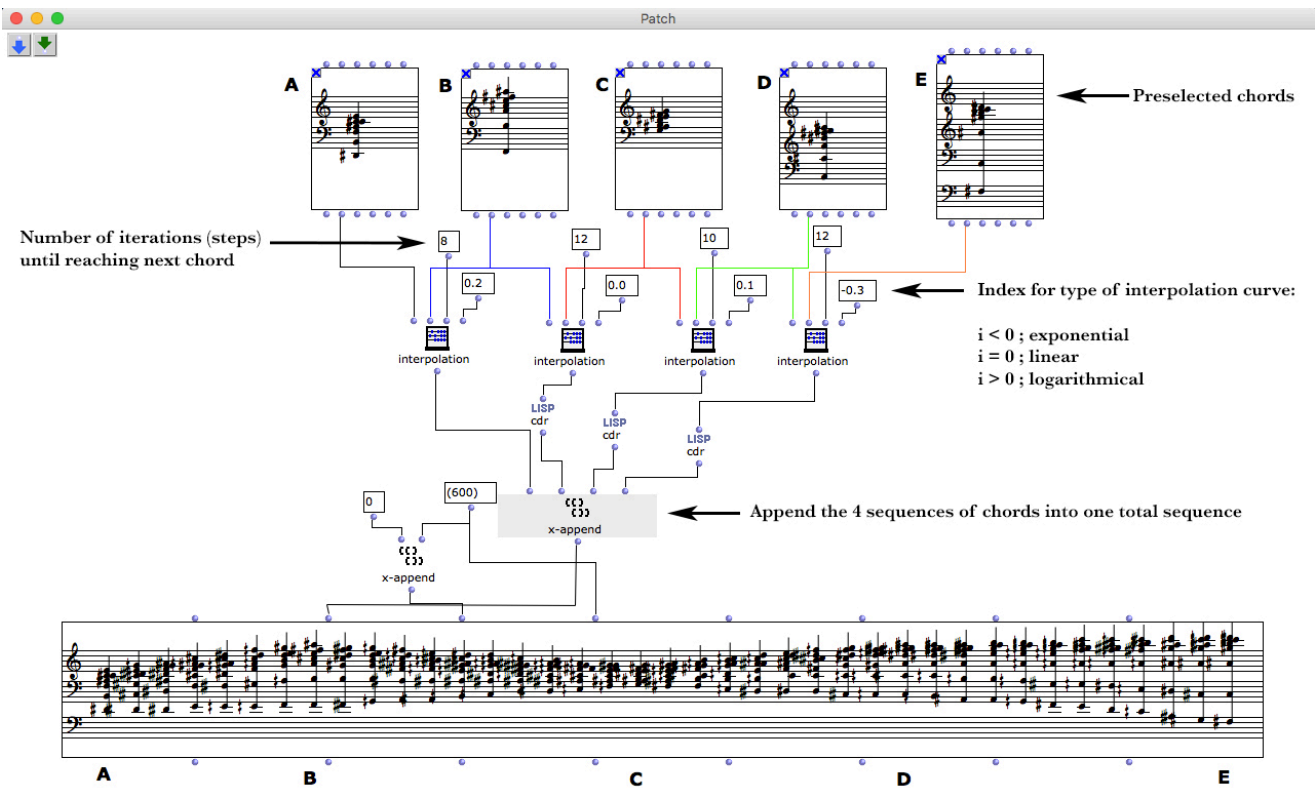


fig. 12 – Open Music patch

It is important to mention that not all the pitches generated are used in the piece, only a selection of them. They mostly appear arranged in chordal configurations with superficial ornamentation and melodic gestures derived from the same harmony. The natural effect of using quarter tone harmony gives a permanent impression of instability which resolves only on the “clean” pivot chords.

In *Väri*, the main purpose of this underlying harmonic structure is to create a sense of the contraction and dilation of the space of pitches, the harmony neither relies on any functional hierarchy, nor is it conceived in terms of the harmonisation of a melody. On the contrary, it is constructed as a set of waypoints with particular “flavours” along a structural path or skeleton. The variation of density is presented using different types of textural figuration: trills and the *bisbigliando* effect (timbre trills) for the first sections and steady, long notes towards the final section.

2.7 *Instrumental synthesis: a tool for an acousmatic composition*

The contemporary composer cannot easily avoid a particular listening mode that Smalley calls “technological listening”.

Technological listening occurs when a listener “perceives” the technology or technique behind the music rather than the music itself, perhaps to such an extent that true musical meaning is blocked.¹⁵

Ligeti’s biography offers a revealing illustration of the effect of “technological listening”. In 1957, soon after his emigration from Hungary, he began an internship at the electronic music studio of Westdeutscher Rundfunk (WDR) in Cologne. The three electronic works Ligeti produced there constitute a small portion of his *oeuvre*, but it is commonly acknowledged that his experiences in the studio were crucial for his stylistic development. There are specific analytical connections between the techniques of *elektronische Musik* Ligeti encountered at WDR and his sound-mass techniques in acoustic composition. The ideas in circulation in the electronic studio of the 1950s – especially as articulated by Karlheinz Stockhausen, Karel Goeyvaerts, and Gottfried Michael Koenig – reveal a collective obsession with gaining compositional control over timbre. By internalizing and reusing the mainstream techniques of *elektronische Musik* such as additive synthesis, filtering,

¹⁵ Smalley, “Spectromorphology: explaining sound-shapes”, *Organised Sound* 2(2): 107-26, 1997.

and *Bewegungsfarbe* (movement colour) in an acoustic form, Ligeti brought timbre forward as the central compositional problem in his acoustic work *Atmosphères*.

In a very similar manner, I have encountered this technological mode of listening during my experience with electronic music at IRCAM and at the Paris Conservatoire. It certainly increased my desire to make the sources and causes of sound perceptually imperceptible, hence “acousmatic”, in my own work. However, Smalley continues;

what is and is not acousmatic is not clear-cut, since music where live performers are involved can become acousmatic when the listener cannot connect the sounds heard with the observed physical activity which supposedly produces them.

For an average listener, who already struggles with the recognition of instruments playing *ordinario* it is to be expected familiarity with extended techniques such as multiphonics, slaps and percussive effects to be negligible. In this sense, acousmatic listening can be achieved using instrumental synthesis: a combination of extended techniques and superposition modes (see section 2.7.2) which constitute a fundamental part of my compositional process.

We have a “natural” tendency to relate sounds to supposed sources, and to relate sounds to one other because they appear to have shared or associated origins. Such is the definition of the term “source bondings” invented by Smalley. They may be actual or imagined – they are constructs created by the listener. Different listeners

may share bondings when they listen to the same music, but they often have different, individual and personalised bondings, which may have never been envisaged by the composer. Wide-ranging bondings are inevitable in music which is not primarily weighted towards fixed pitches and intervals.

Examples of contemporary instrumental composers who can be appropriately listened to acousmatically are Xenakis, Grisey, Saariaho, Murail, Dillon, Furrer, Saunders and many others concerned with spectral and textural complexity. In acousmatic music composition, there is often a loss of instrumental identity as the orchestra is “resynthesized” into a hyper-instrument. Therefore, we can be persuaded to forget individual note-gestures as these are subsumed into streams and collective motions. Acousmatic composition is not only the result of an avoidance of clichés; it arises also from the need for new sonic dimensions of perception for technological listeners. An acousmatic approach to composition requires the reformulation of its primary parameters, and lead to the use of concepts such as energy, velocity and density, instead of melody, harmony and rhythm, which become secondary.

Sound is a continuous phenomenon; we perceive it as a sonorous stream in which we concentrate on particular moments. Absolute silence does not exist in the terrestrial atmosphere; sound is always present, in every moment of our lives. We are immersed in a sonic space that is a primal source of information. There is no break in aural perception. This general notion of continuity became important notably during the twentieth century where the concept of “continuum” came to prominence. The discovery of sound worlds thanks to electroacoustic techniques and progress in

acoustics, opened the door to the notion of a “perceptual continuum” of pitch, rhythm, timbre and space. In the 1950s, Pierre Schaeffer revealed that we could obtain a flute-like sound by cutting the attack transients of a very high note of a piano. Modifying the characteristics of a sound, especially in the first milliseconds corresponding to the attack transients, we radically modify its timbral qualities. We can also modify the timbral qualities of a composite sound by combining different instrumental events into one new entity, which can become acoustically inextricable. While the success of this method depends on the skills of the listener (strongly in the case of a technological listener), his ability to distinguish the elements configuring the sound had the potential to cancel the artistic intention of the most talented acousmatic composer. However, in cases of very complex or refined configurations, the number of individuals capable of such a task tends to be very limited; it will always depend in large measure on the mastery of the “instrumentation techniques” used by the composer and the skill of the performers who execute the combined musical gesture.

By instrumentation, I am not referring just to the traditional practice of distributing notes, melodic lines or rhythmic patterns from a reduced sketched version of the piece into instrumental parts. Rather, I mean a combinatory method using the whole palette of instrumental sounds (including extended techniques), the outcome of which is an acoustically “composed” sound. Composition then happens at a “molecular” level, since the creation of a gesture is never a matter of one unique element (“atom-instrument”), but a combination of at least two. Instrumentation influences

composition to such a high degree that both are commonly entangled in my music: formal decisions are often affected by instrumental configurations and vice versa.

Subsequently, my research focuses on developing new instrumentation techniques in order to make this alchemical process possible. It involves not only computer-assisted orchestration techniques, but also wide-ranging exploration of extended playing techniques categorized by timbre properties.

Nevertheless, most of this portfolio is the result of intuitive on-score tests, searching for aural validation throughout performance in rehearsal, workshop or concert situations. Such instrumental research, in the shape of new complex sonic objects, aims towards novel perceptual properties which differ from those of the instrumental components (atoms) that constitute the basic elements of my musical language. Due to the fact that these sonic configurations acquire qualities largely independent from their source, the listening process is likely to transport the listener into imaginative spaces where the intrinsic parameters are gestural: timbre, dynamic, density and shape. Thus traditional methods of composition have been metamorphosed into “molecular” compositional techniques, while traditional rhythmic patterns are substituted by temporal configurations.

Although I still notate my scores with customary rhythmic values, the sense of pulse, or tempo, has almost completely vanished. Instead we have contraction and dilation processes, mechanical patterns and articulated impulses. Colour transitions emerge as temporal guides in slow passages and extreme articulation; while accents and sforzandi become signposts to guide the listener.

2.7.1 Instrumental synthesis

Currently, the most significant body of work in instrumental music that directly draws from recorded sound as part of its aesthetic and compositional process is the broadly conceived “genre” of spectral music. According to Grisey this music derives its formal organisation from the observation of recorded media and “the physics of sound, as discovered through science and microphonic access”.¹⁶ A central pillar of spectral music is the technique Grisey calls “instrumental synthesis”, where a recorded sound is orchestrated based on an analysis of its frequency content over time (either by the visual aid of a spectrogram or, as is often the case in contemporary examples, increasingly sophisticated and diverse software analysis tools). The technique is so-named in order to draw a parallel to the electro-acoustic additive synthesis of complex sounds, but in this case, the “building materials” are not individual oscillators, but acoustic instruments. This technique, however, has broadly been used to mimic pre-existing sounds.

2.7.2 Superposition modes

Contrary to mimetic instrumental re-synthesis from a singular sound, I use spectral techniques without an original source, therefore as “instrumental synthesis”. It consists of the juxtaposition and/or superposition of two or more instrumental sounds, in order to merge their individual acoustic qualities. The following chart (fig. 13) shows 10 superposition modes which appear constantly in my music, as they are

¹⁶ Grisey, “Did You Say Spectral?” (1998) Trans. Joshua Fineberg, *Contemporary Music Review* 19(3): 1-3 (2000)

basic elements for my mode of instrumental synthesis. They have been distilled from my electroacoustic practice and incorporated progressively into my compositional palette in the last five years. The defining parameters are limited to dynamics (shades of grey in fig. 14) and time. Even if pitch and performance techniques have a significant role in the final instrumental bonding, they merely change the colour of the gestures, meaning that the main shape is not altered.

Superposition modes

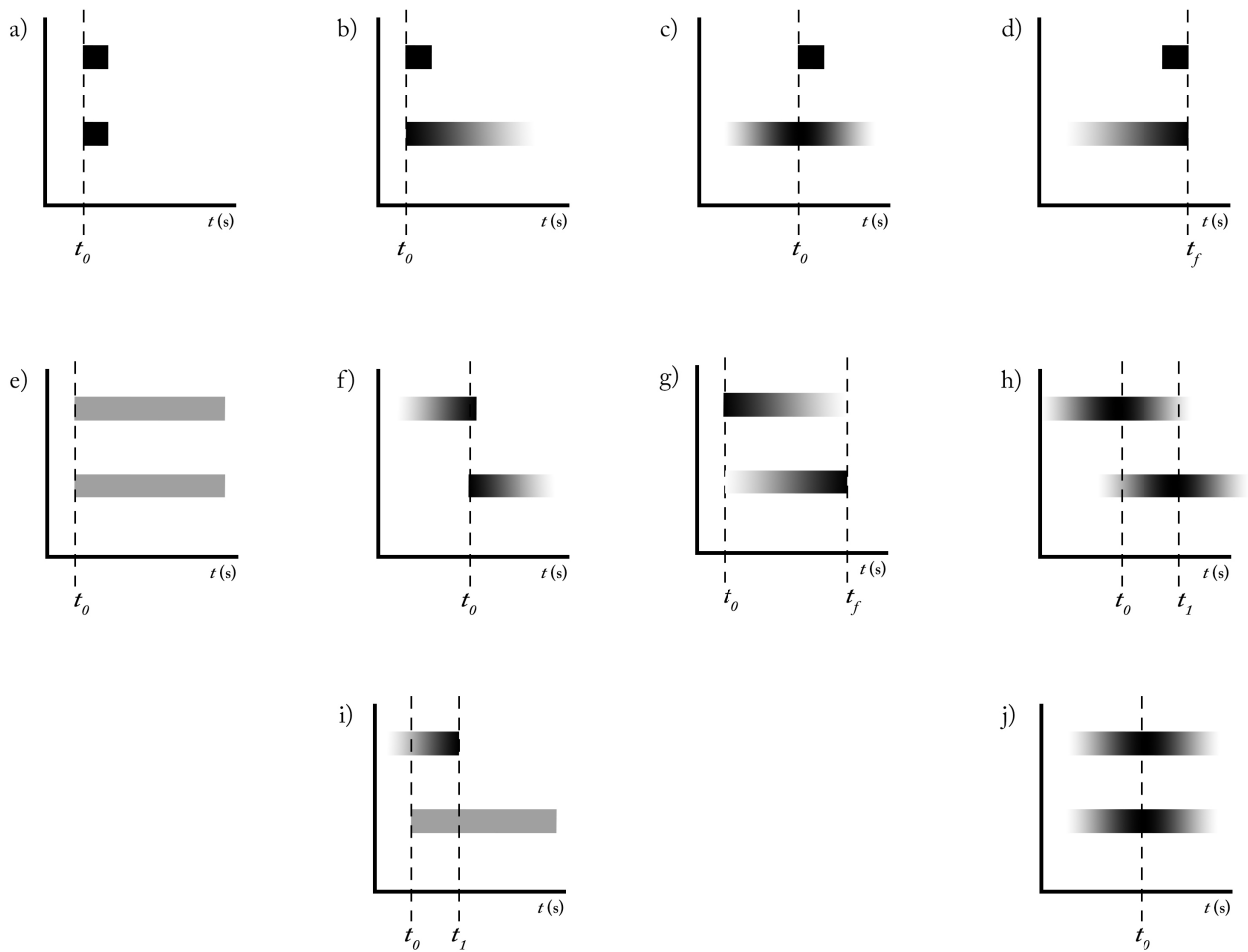


fig. 13 - Set of superposition modes

Superposition mode A

Mode A consists of a simple superposition of two or more short elements synchronously. They are often percussive effects such as pizzicato, slap, tongue ram or very short notes in a *mp-ff* dynamic range, but they can also occur as *ordinario* pitch sounds, executed in homophony. Due to their short duration, they are often used in rhythmic patterns. An example of superposition mode a) is the first bar of *Hach* (see fig. 14).

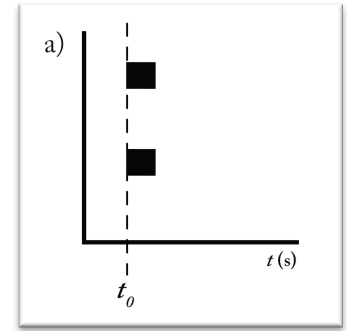


fig. 14 - Mode A

fig. 15 – Example of mode A in Hach

In this example (fig. 15), every instrument plays together, obtaining a hybrid sound, whose individual elements are no longer perceivable. In a strict sense, only the bass clarinet and vibraphone are superposed using the mode A, since the crotales, harp and string pizzicato are not actually short due to their resonance. This example shows that this mode is often found combined with others; here, the gesture shares some of the characteristics of modes A and B.

Superposition mode B

This mode consists of superposing one short sound, commonly louder, on top of a longer one in a diminuendo shape (see fig. 16). Acoustically, this corresponds to an attack-decay profile where the attack of the long sound is masked by that of the shorter. The purpose is to confuse the

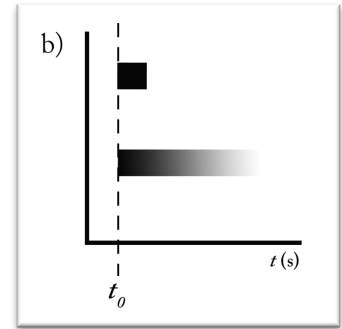


fig. 16 - Mode B

ear of the listener and to break the logical bonding between the expected source and the actual sound. An example of the superposition mode B can be found in *Blanc Cassé*, bars 18-20 (see fig. 17).

fig. 17 - Example of mode B in Blanc Cassé

In fact, here we have the mode B superposed many times. Yet it is difficult to find a bar in the whole portfolio where this mode is used in isolation.

This “molecular” compositional technique demands meticulous work on every moment of the score. It becomes a precise set of instructions to be followed accurately in order to create the intended compound sound.

Superposition mode C

Mode C consists of articulating a short sound (sound 1) superposed onto a longer one (sound 2) at the loudest instant of the latter (see fig. 18). It functions as a momentary enrichment of the spectrum of frequencies of sound 2. If sound 1 is of a very different nature to sound 2, the gesture

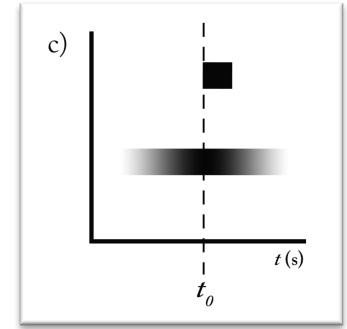


fig. 18 - Mode C

created adds an acoustic edge to the global spectromorphological shape. In the example shown in fig. 19 from the piece *ISON*, we can observe mode C in bar 53 constructed between the compound sound of the flute and viola and the short hits of the cello pizzicato and the dampened piano (harmonic). A few bars later, in bar 56, the piano and violin strike at the peak of the Δ shape compound sound of the flute and viola.

fig. 19 - Example of mode C in *ISON*

Superposition mode D

Mode D has the shape of a reversed sound attack (see fig. 20).

Both instruments stop playing at precisely the same moment (t_f). This mode infers intention and is highly effective juxtaposed with mode A (combined attack) for a sudden change of colour.

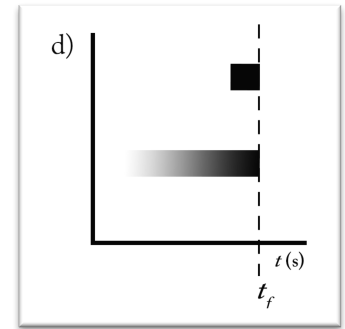


fig. 20 - Mode D

In the example shown in fig. 21, taken from the section *Oxygen* of my piece *A-toms*, we can observe how the ***sfz*** arrival on the first beat of bar 139 in the clarinet, accordion, and strings coincides with the ***sffz*** slap of the saxophone and tam-tam and crotale hits.

fig. 21 - Example of mode D in *A-toms*

Superposition mode E

Mode E represents any superposition mode where both of the given instruments start and finish together as though they were one voice (see fig. 22). It is one of the most common modes in traditional instrumentation, for example in the form of doubling or homophony. Instruments of the same family

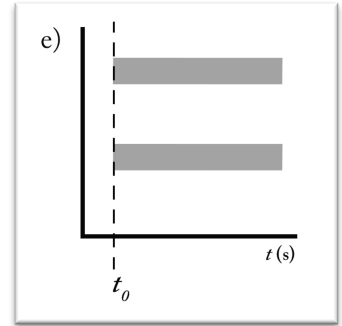


fig. 22 - Mode E

combine especially well at intervals smaller than an octave. The first bars (1-13) of my piece for an ensemble of 6 voices *Eimai* are a good example of mode E. In fig. 23, two distinct groups, each formed by 3 voices, articulate the same phonemes and follow exactly the same dynamics, hence each group makes up a single musical entity.

fig. 23 - Example of mode E in Eimai

Superposition mode F

Mode F is one of my preferred superposition modes (see fig. 24). It consists of a crescendo gesture stopping at its dynamic peak, shortly after a second gesture starts. The second gesture does not need to decrease after the attack; nevertheless, a more natural shape is achieved if it does. Perceptually, it is

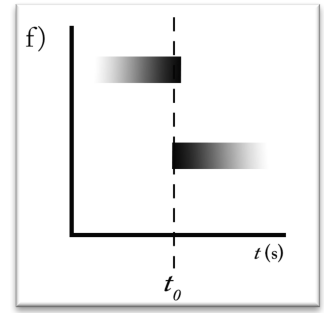


fig. 24 - Mode F

heard as a sudden change of timbre, breaking-off and linking a melodic line at the same time. It is very effective in passages which require a fast pace of energy, typically used to express TSUs with flowing characteristics, i.e. *Moving forward*, *Wavelike*, *Turning*.

fig. 25 - Example of mode F in Mira

In *Mira*, for recorder, voice and electronics, the superposition mode F is used many times throughout the piece, as well as throughout the whole portfolio (see fig. 25). For such a mode

to be performed accurately, it is necessary to give the

performers sufficient information as to what other parts are playing, especially those parts which have to follow a superposition mode F.

Consequently, my individual parts are filled with cues. Moreover, in some cases, especially when two instruments are regularly rhythmically-related, both parts appear on the same page to help synchronise their gestures.

Since my music is full of superposition modes demanding rhythmic precision, performers often need extra time to perfect this and it therefore usually requires longer rehearsals, which are unfortunately hard to come by.

Superposition mode G

Mode G consists of two sounds with opposed dynamic contours starting and ending together (see fig. 26). This is, then, a progressive change of colour from one part to the other, a sort of acoustic cross synthesis.

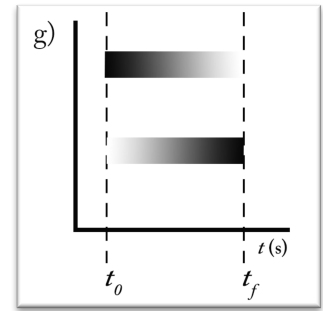


fig. 26 - Mode G

In fig. 27, bar 58 of *Di(e)visks* shows a realisation of mode G.

Here, a gradual transition in timbre occurs from the cello's double-stopped strings to the saxophone multiphonic.

fig. 27 - Example of mode G in *Di(e)visks*

fig. 28 - Combination of modes in *Shī*

In bars 34-37 of *Shī* (see fig. 28), a more complex combination of modes has been employed: the loud component of the gesture, soprano 2b and the altos, emerge in bar 35 after a gradual process of superimposition started at the beginning of bar 34, with a pitch accumulation towards the high register.

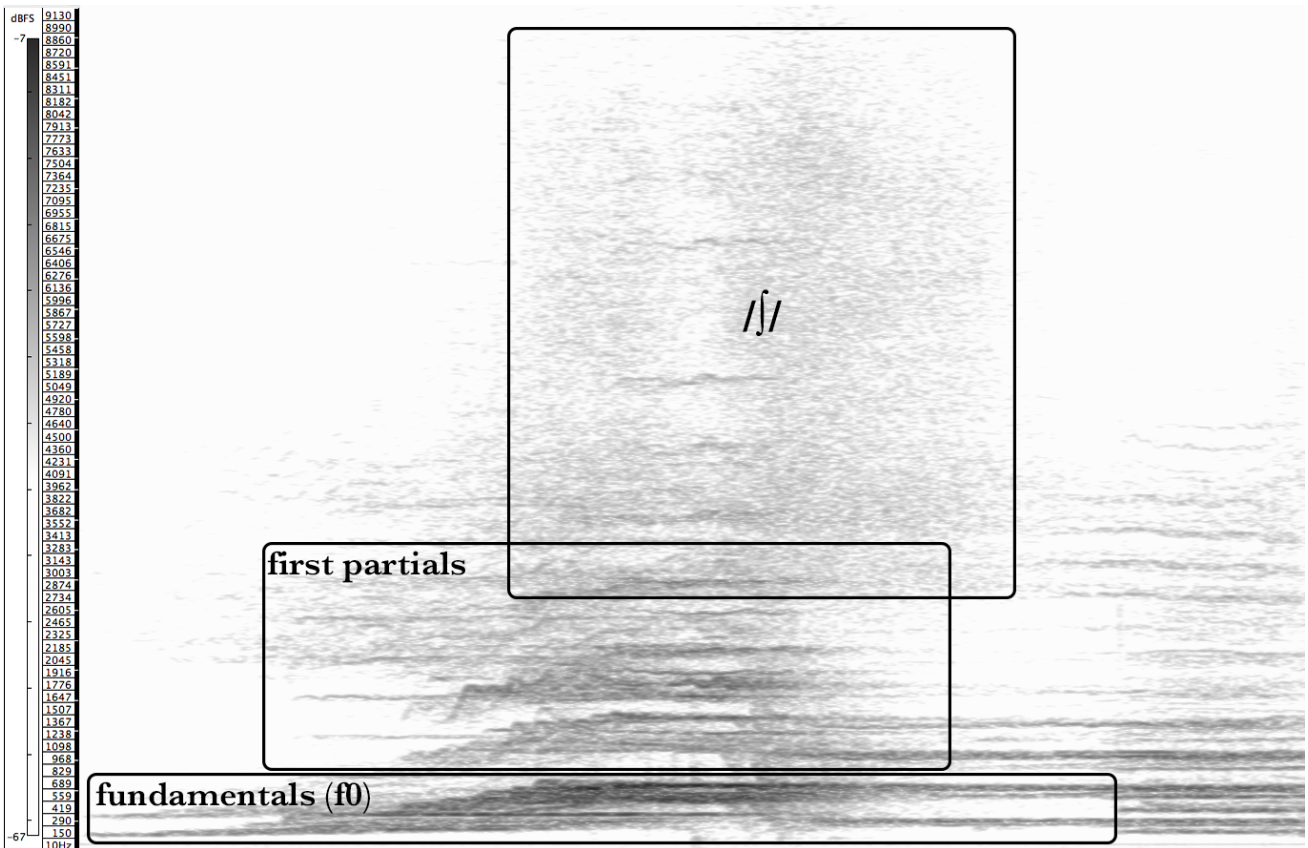


fig. 29 - Spectrogram of bars 34-35 of Shī

Fig. 29 shows the spectrogram of the gesture. The loud component of the $/j/$ sound appears above the higher partials of the sopranos.

Superposition mode H

Mode H is a delayed superposition of two sounds in a delta (Δ) dynamics contour (see fig. 30). Each sound reaches its peak volume level at different points. Slow changes of volume can create gradual variations of timbre. This is a variation of mode G where the sounds have their own timing (beginning and end). This mode is very effective for creating calm and quiet atmospheres, for instance for the TSU *Suspension*, as in bars 50-57 of *Eimai* (see fig. 31) and also fast changing timbre colours, such as in bars 41-43 of *Shi* for female voices (see fig. 32).

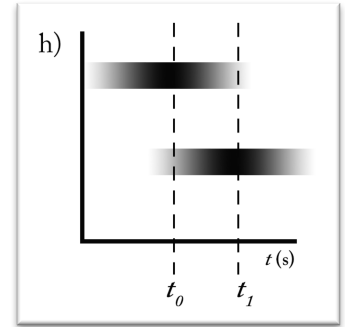


fig. 30 – mode H

fig. 31 - Example of mode H in Eimai

41 4/4

The musical score is written for eight staves, labeled S 1, S 1b, S 2, S 2b, A 1, A 1b, A 2, and A 2b. The time signature is 4/4. The score begins with a box containing the number 41 and the time signature 4/4. The music is characterized by dense, rapid passages of beamed sixteenth and thirty-second notes. Dynamic markings such as *pp*, *p*, and *mp* are used to indicate volume. Shaded rectangular boxes highlight specific measures in several staves. Fingerings, indicated by 'i' and '3', and breath marks, indicated by a 'v' symbol, are present throughout the notation.

fig. 32 - Example of mode H in Shi

Superposition mode I

Superposition mode I is very similar to mode F but with a second sound starting well in advance of the loud end of the first one (see fig. 33). There is a contrasting effect between the first and the second sound. This mode is particularly effective when both sounds are almost in unison, because the drastic

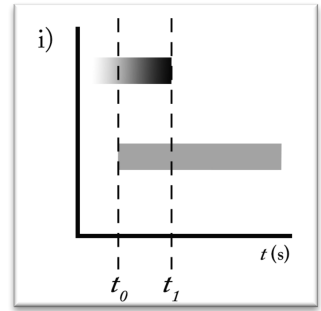


fig. 33 - Mode I

change in dynamics accentuates the timbre differences between the sounds. In the following example from *A-toms* (see fig. 34), bars 36-37, the bass drum roll, accordion cluster and double bass multiphonic end synchronously at the very end of the bar 36. The Clarinet, saxophone and violin, which started their pitches during the second and last beat, continue playing at medium dynamics. Once the masking effect of the clustered chord of the accordion and percussion roll halts, the background effect is revealed.

fig. 34 - Example of mode I in *A-toms*

Superposition mode J

As shown in fig. 35, mode J is a version of mode E where both sounds follow a delta dynamics contour.

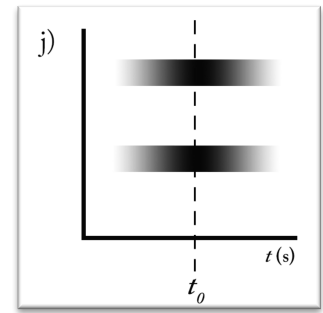


fig. 35 - Mode J

2.7.3 Use of pitch as an attribute of texture

Superposition modes explain the temporal disposition of the “building bricks”, which are instrumental bonding techniques. However, each “brick” has its own character, its inner pitch (frequency) structure: its colour (in cases of clear harmony structure) or its texture (when pitch perception has been dissolved).

In terms of pitch structure, I differentiate four typologies:

1. Chords (also clusters)
2. Melodic lines/figures
3. Ornamental surface (trills, tremolos)
4. Pitchless sounds (use of extended techniques)

In *Väri*, *Hach* and *Eimai*, I consciously adopted a more conventional use of chords and harmony. These pieces are the result of a special focus on harmonic progressions and harmonic fields, as has been already shown.

In other pieces, such in *Di(e)visks*, *Mira* and *Shī*, conversely, I employed a melodic stroke approach. By this, I mean that I re-imagine melody as a stroke, or line, of variable thickness, in a manner similar to the variation of brush thickness for the drawing of lines in painting (see fig. 36). In musical terms, a monophonic line can easily be converted into a stroke by adding microtonal, semi-parallel melodic lines, hence, making the original line thicker and denser. I have used this technique in pieces such as *Shī*, *Mira* and *Di(e)visks* (see fig. 37), but it can also be found in most of this portfolio. This process can extend to the formation of massive clusters (see fig. 39) and also shrink back to monophony. Fig. 38 shows the spectrogram of the first four bars of *Shī*: we can observe how the horizontal line (frequency) becomes thicker in bar 2 and yet more so in bar 4.

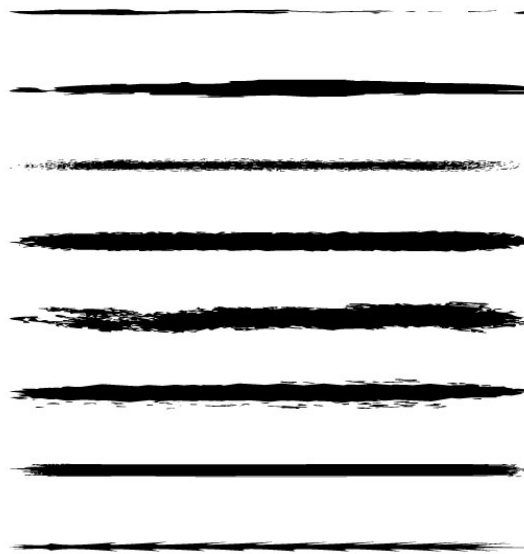


fig. 36 - strokes

3 Calmat
4 ♩ = 60

Soprano 1

Soprano 2

Alto 1

Alto 2

fig. 37 - Example of “thin stroke” in Shī

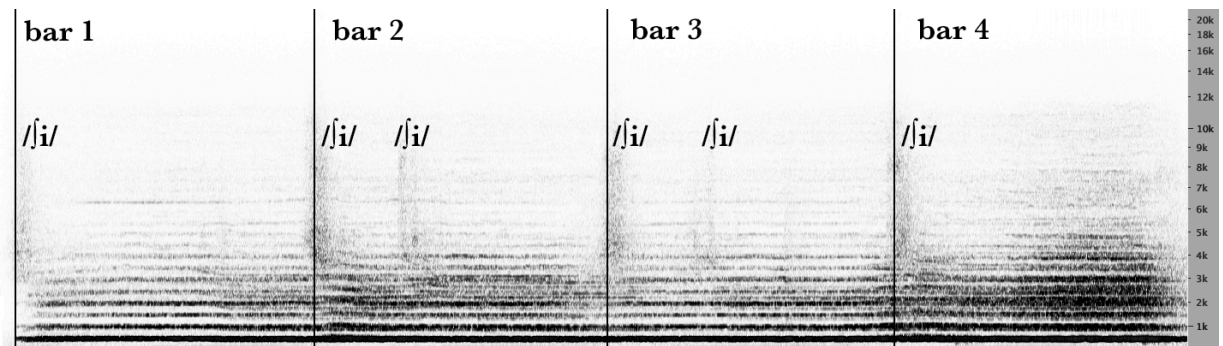


fig. 38 - Spectrogram of first bars of Shī

With this stroke technique, traditional harmony becomes redundant. Furthermore, a different perception strategy is required. Since a clear intervallic relationship between pitches is not possible, because they cease to be perceived as such, the listener is forced to contemplate each stroke as a sonic entity. These entities are projected in space (frequency) and concepts of distance or density can be introduced. They also become energy profiles in time (dynamics). This connects with the TSU conceptual framework and with physical notions such as density, force, energy and weight, etc.

This timbre-oriented listening attitude dramatically conditions composition strategies. Melodic profiles are often simplified by it and the use of sound-blocks with clear differentiated acoustic parameters is needed.

Without such simplification, cacophony could easily emerge as a consequence of an excess of information. Such simplification has the clear purpose of allowing listeners to liberate the energy used in the process of recognition of melodic/harmonic patterns. Consequently, this freed energy can be used into a different cognitive space where timbre and morphological shapes occur. It is my expectation that this cognitive process may foster the limits of aural perception in the same manner that abstract painters changed the way we perceive colour, shape and texture.

The musical score is for a 12-part ensemble, with parts labeled S1, S1b, S2, S2b, A1, A1b, A2, and A2b. The score is written in 4/4 and 3/4 time signatures. It features complex rhythmic patterns, including triplets and glissandos. Dynamic markings include *mf*, *no dim.*, *mp*, *fp*, *p*, *f*, and *molto cresc.*. The notation is dense, with many notes and rests, illustrating the 'thick stroke' concept.

fig. 39 - Example of “thick stroke” in Shī

explained by the sensory dissonance curve¹⁷ shown in fig. 40. The grid indicates the 12 equally tempered intervals. It can easily be observed that maximal sensory

¹⁷ Sethares, “Tuning, Timbre, Spectrum, Scale”, Springer 2005, Fig. 6.1, p.100

dissonance occurs near the unison (quasi-unison) and near the octave. Minimal sensory dissonance (consonance) occurs at simpler frequency ratios.

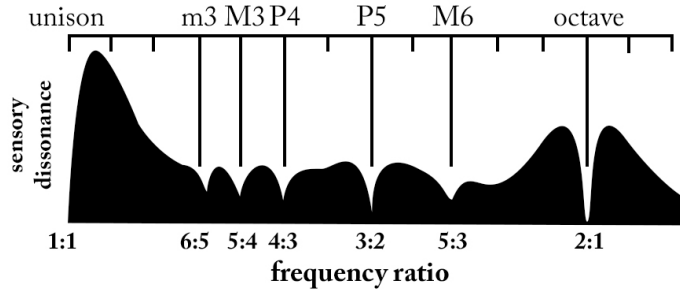


fig. 40 - sensory dissonance curve

2.7.4 Study case: *Di(e)višks*

The best strategy to avoid harmonic inference is to maximise dissonance, therefore, microtonality (quasi-unison and quasi-octave), minor seconds and major sevenths are largely used throughout the portfolio. *Di(e)višks* is a particularly good example of this technical strategy. Melodic lines are “blurred” using these intervals. An example of such “blurring” methods can be found in bars 1-3 (see fig. 41), bars 5-7, bar 9 and so on, and they are especially perceptible in bars 23-24 (see fig. 42).

The score shows two staves: Soprano Sax (S. Sax.) and Cello (Vc.). The key signature is 4 flats, and the time signature is 4/4. The Soprano Sax part features a melodic line with various dynamics and articulations, including *mp*, *pp*, *mf*, and *p*. The Cello part provides a harmonic foundation with dynamics like *p*, *mf*, and *pp*. The notation includes slurs, accents, and dynamic markings to indicate the “blurring” technique.

fig. 41 - Example of “blurring” method

The score shows two staves: Soprano Sax (Soprano Sax) and Cello (Cello). The key signature is 4 flats, and the time signature is 4/4. The Soprano Sax part features a melodic line with various dynamics and articulations, including *sfz*, *ppp*, *mf*, and *p*. The Cello part provides a harmonic foundation with dynamics like *sfz*, *ppp*, *mf*, and *p*. The notation includes slurs, accents, and dynamic markings to indicate the “blurring” technique.

fig. 42 - Example of ‘blurring’ a melodic line

This piece for two instruments was a perfect space in which to experiment with bonding techniques. The abundant use of multiphonics in the saxophone part and double stops in the cello offered many opportunities to test harmonic composite structures. I also experimented here with superposition modes, especially modes A, B, C and F.

Similarly, in *Shī*, bars 5-8 (see fig. 43), the density of the sung lines is also constantly modified with microtonal techniques.

The musical score is written for four staves, labeled S1, S2, A1, and A2. The first staff (S1) is in 4/4 time, and the second staff (S2) is in 3/4 time. The score includes various dynamics such as *mf* (mezzo-forte), *pp* (pianissimo), and *mp* (mezzo-piano). Microtonal techniques are indicated by markings like *fi* (finger in) and *gliss.* (glissando). A large grey rectangular area covers the right side of the score, indicating a section of 'thickening' and 'blurring'.

fig. 43 – “thickening” and “blurring”

2.7.5 Use of rhythm as a feature of time

In my compositions I have envisaged rhythm mainly to serve the following purposes: the articulation of pulses, the definition of temporal contraction and dilation processes, the establishment of mechanical patterns and the enhancing of timbre transitions. Rhythmic structures can derive from one another and evolve throughout the piece. A principle of continuous mutation is often present, causing the inner structure of the patterns to evolve during the piece.

Again, in order to compensate to the technical complexity of the extended techniques employed and the use of very precise dynamics, I consciously chose simpler rhythmic patterns and triplets of smaller values.

Having studied in the United Kingdom, and especially in London where rehearsal time is extremely scarce, has taught me the value of efficiency is key with regards notation. When rehearsal space is in short supply, clarity in this respect is essential. This paucity in turn reduces the possibility for experimentation and research in the domains of extended techniques which require a great deal of rehearsal. On the other hand, I rather prefer to use time signature changes very frequently as it serves to capture rhythmical cells or figurations.¹⁸ Bars have their original function returned, as in my music they always tend to mark synchronising points for the performers.

¹⁸ Following medieval neumatic notation and Gregorian chant, composers in the Renaissance started to write bar lines onto the scores to facilitate a synchronised performance. The history of notation also demonstrates the need of composers continuously to improve notation to express higher levels of precision. However, in contemporary experimental music, the clash between

In fig. 44 we can observe an example from *Algol* for 2 tubas and euphonium. In A and B, tubas 1&2 play a stalling rhythmical pattern and as do the euphonium and tuba 2 in C, while in D tubas 1&2 combine on a faster ascending figure. In F, contrary to the tubas in the beginning of the bar, the euphonium accelerates towards a synchronized *tutti* on the first beat of bar 202.

The musical score for *Algol* for Euphonium, Tuba 1, and Tuba 2, measures 195 to 202. The score is divided into sections A, B, C, D, and F. Section A (measures 195-196) shows a 3/8 to 3/4 time change with an acceleration. Section B (measures 197-198) features a 4/4 time signature and a tempo of 108. Section C (measures 199-200) is in 4/4 time. Section D (measures 201-202) is in 3/4 time. Section F (measures 203-204) is in 2/4 time. The score includes various dynamics (ppp, ff, p, pp) and articulations (acc., gliss., stacc.).

fig. 44

tradition and new forms of musical expression have exploded into a large variety of new notation approaches, with rare cases actually being more efficient

2.7.6 Computer-assisted orchestration: Orchids

Since the Renaissance, many composers have exploiting the idea of the imitation of sounds from nature (mimesis). Examples such as Vivaldi's *Four Seasons*, or Messiaen's attempt to reproduce birdsong in his piano and orchestral works illustrate this fascination with the imitation of nature. In a general sense, all humans are influenced by the sonic ecosystem which surrounds them since birth. This conditioning is mostly unconscious; it happens at an unconscious level as soon as we interiorise the sounds of our heart beat, breathing and blood circulation as part of what we perceive as "silence". Similarly, we normalise external sounds, like the ticking of a clock, the noise of traffic or a barking dog. All of these can serve as an active inspiration for music, e.g., through the use of a microphone to record any sound and analyse it.

The rapid advance of psychoacoustics and the recent use of computational processes applied to acoustics offer new opportunities for composers to solve this eternal quest for replication. It was this that pushed IRCAM engineers to develop Orchids.¹⁹

Orchids is a software that extracts a set of instrumental combinations (solutions), those matching the best the psychoacoustic characteristics of a given input sound (target), from an extensive database of sounds. The computational algorithm uses the acoustic parameters of each individual instrumental sound in the database (also called psychoacoustic descriptors) and combines them clever in order to match the

¹⁹ <http://forumnet.ircam.fr/product/orchids-en/>

descriptors from the analysis of the target sound (see fig. 45). Orchids also offers a playback option that helps the user to detect the best solutions by listening to them.

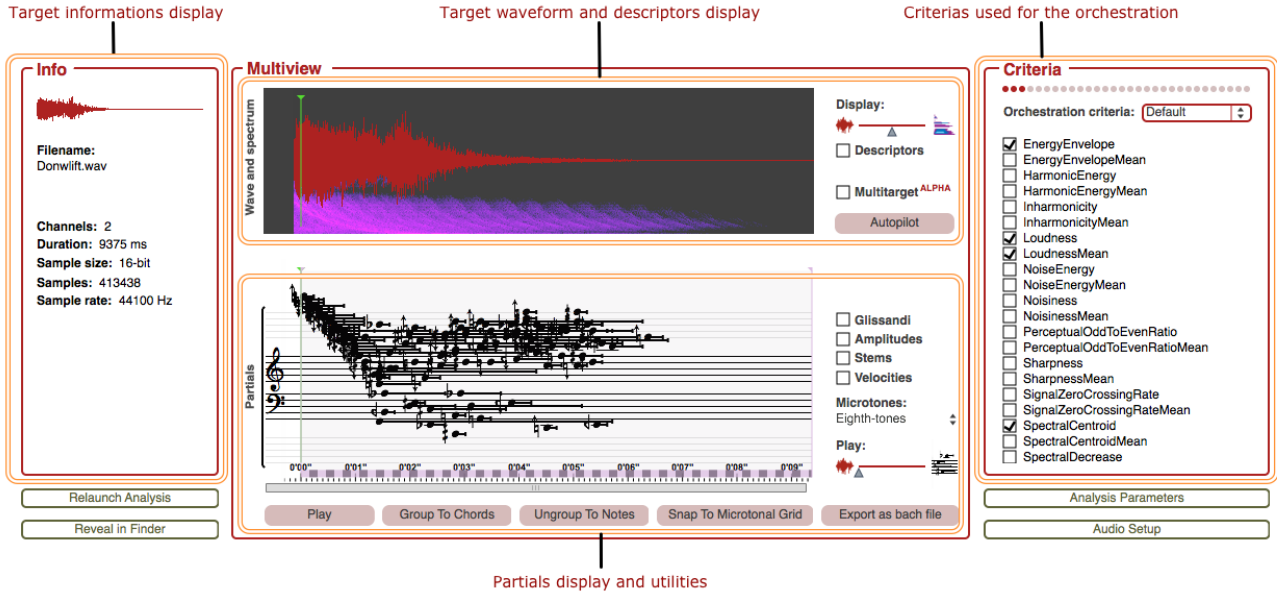


fig. 45

Orchids is the first complete system for abstract and temporal computer-assisted orchestration and timbral mixture optimization. It provides a set of algorithms and features for reconstructing any target sound which evolves in time with a combination of acoustic instruments, given a set of psychoacoustic criteria. It can help composers to achieve unthinkable timbral colors by providing efficient sets of solutions which best match a sound target. With an extended set of features, it can also reproduce abstract spectral descriptor movements (bypassing the need for a sound file) with the combination of any given sounds. Orchids's results provide multiple orchestral scores, for each solution, that can also be arranged in a timeline in order to perform a fast sketching of musical ideas. Orchids also provides several algorithms for jointly approximating several timbral properties. The advantage of the Orchids system is

that this approximation can be made separately over temporal shapes, mean values or standard deviations (or any combinations of the three) of each psychoacoustic descriptor.

The use of Orchids in this portfolio has been, however, secondary. This software provides a set of possibilities with a common origin (the sound target) and offers a variety of different instrumentations that share similar perceptual features (see fig. 46). Therefore, I use Orchids as a sandbox from which to pick certain combinations my ear found interesting and then to transform them into musical gestures. The software also allows one to modify the solutions after the algorithm has ended, making Orchids an orchestration tool rather than one of replication. Only two of the pieces in this portfolio, *Blanc Cassé* and *A-toms*, have been partially produced departing from solutions given by Orchids. There is never a strict use of the solutions and the final score is the result of further steps in the process of instrumental composition.

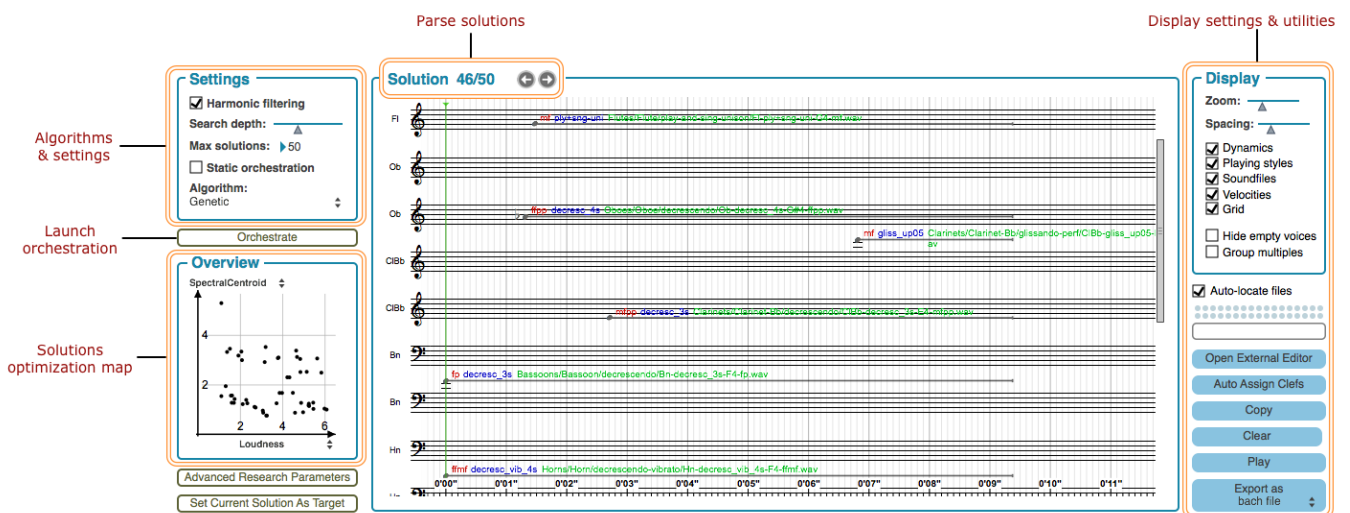


fig. 46 – Example of Orchids’ solution panel

2.7.7 Case study: *Blanc Cassé*

Blanc cassé was commissioned by the ensemble Vertixe Sonora, based in north-western Spain. The opportunity was given to two other young composers to write a piece for ensemble inspired by the painter El Greco (*Doménikos Theotokópulos*, 1541-1614). His dramatic and expressionistic style was met with puzzlement by his contemporaries but found appreciation in the twentieth century, since he is regarded as a precursor to both Expressionism and Cubism. While his personality and works were a source of inspiration for poets and writers, such as Rilke, El Greco has been characterized by modern scholars as an artist so individual that he belongs to no conventional school.

For *Blanc Cassé*, I picked a painting of Toledo, my grandparents' home town. *View of Toledo* is among the best-known depictions of the sky in Western art, alongside Van Gogh's *The Starry Night* and the landscapes of Turner and Monet, among others.

Most striking is the distinct colour contrast between the dark and sombre skies above and the glowing green hills below, but, a special shade of off white used frequently by El Greco stimulated my creativity in particular. This colour is called *blanc cassé* in French (literally “broken white”) and has an interesting association to damaged colour, an invitation to listen the piece focusing in the timbre (colour) of the music and to discover its different shades. I associate white with light and brightness, so, in *Blanc cassé*, white colour has been represented by high frequency pitches and superficial trembling figures. Even though, most of this piece illustrates the dark and sombre colours of El Greco's palette, the contrast is given briefly in bars 28-34, with

short flashes of *blanc cassé* instrumental colours and is picked up again from bar 50 until the end.

2.7.8 Case study: *A-toms*

This is the most recently composed work in this portfolio. It was commissioned by Radio France and recorded in June 2016 in Paris. It both embodies and sums up my doctoral research in acousmatic composition. In terms of inspiration, it draws from my interest in physics (atoms) and relates in a looser way to TSU theory. The title also alludes to the piece's "molecular" approach to instrumentation.

One of the conditions of the commission was to write five short movements to be performed separately. Each movement had to be strictly 2 minutes long, due to the short format of the radio programme. The movements were broadcast cyclically from Monday to Friday and were played twice daily. On the subsequent weekend the full suite of five movements was broadcast in its entirety. I used this opportunity to explore five musical ideas using the same instrumentation. Each movement is named after the initial letters of five atomic elements: **A**rgon, **T**itanium, **O**xygen, **M**agnesium and **S**ulphur. The hyphen between *A* and *toms* points to the chemical idleness of the element **A**rgon. The movements are presented following the order of the word "atoms"; however, they can be performed in any other order.

Movement 1: *Argon*

The name "argon" is derived from the Greek word ἀργόν, neuter singular form of ἀργός meaning lazy or inactive, as a reference to the fact that the element

undergoes almost no chemical reactions. The musical translation of this “laziness”/inactivity is the heavy, dark, unpredictable and unstable character of this movement. In terms of TSUs, this movement could be characterized by *Heaviness* and in a few places by *Obsessive*. Recurring pedal notes in the lowest register of the double bass and accordion pull the musical texture down, reinforced by the hefty accents of the rest of the instruments with the exception of the percussion. There is, however, a balanced response to the strokes outlined by the multiphonics of clarinet and saxophone textures (see bars 2-3, bars 6-7, bar 13, bar 23, bar 36, bars 40-42). These multiphonics are specially selected to create a dense but soft clustered object (see fig. 47). All the multiphonics have an intrinsic dynamic range, so only a few of them can be produced from *pp* to *ff*.

Clarinet: bb3-4 bb6-7 b10 b11 b17 b18 b20 ...

Saxophone:

fig. 47

octave. As explained in section 2.7.3, I use “clusterisation” and “near-octave” methods very frequently; they are very effective at merging instrumental timbre. Spectral composers, motivated by acoustic phenomena, commonly use methods driven by the same principle to recreate new complex harmonic structures based on the analysis of pre-existing sounds. My goal is not to recreate a sound, but to compose new ones.

In the temporal domain and similarly to the previous piece, *Hach, A-toms* exemplifies “instrumental bonding” techniques. This consists of the juxtaposition and/or

superimposition of two or more instrumental sounds in order to merge their acoustic qualities. In the score, we can find more complex combinations than those mentioned above, especially when the number of instruments in action is greater than two. A first example of instrumental bonding is found in bars 1-2, in which the crescendo of the accordion and double bass stops on the first beat of bar 2, where the violin starts playing and the clarinet and saxophone articulate with a slap (see fig. 48).

4 Argon ♩ = 66

The musical score for 'Argon' is written for six instruments: Clarinette (en Si \flat), Saxophone alto (en Mi \flat), Percussion, Accordéon, Violon, and Contrebasse. The tempo is marked as ♩ = 66. The score is divided into measures by a vertical dashed line. The Clarinette and Saxophone alto parts feature 'slap' articulation and dynamic markings of pp, mp, and pp. The Percussion part includes a 'Grosse Caisse' (bass drum) with a dynamic marking of mf. The Accordéon part has a 'bend' articulation and dynamic markings of mp, p, and ff. The Violon part has a 'port.' (portamento) articulation and dynamic markings of mp, p, and pp. The Contrebasse part has a 'port.' articulation and dynamic markings of mp, p, and ff. The score also includes a 'multiphonique' (multiphonic) section for the Violon and Contrebasse.

fig. 48

“Instrumental bonding” also depends on parameters such as frequency, loudness and timbre. Depending on whether or not one wants to transform one timbre into another one would need to adjust the frequency (pitch) of the notes of each instrument. Such constraint is extremely important in computational cross synthesis,

where the two sounds to be combined have to be tuned at precisely the same frequency for a successful sonic transmutation. In terms of volume, it is also very important to take the sensitivity of the ear into consideration, thus perceived loudness measured in *phons*, is dependent on frequency. We would need to reinforce bass instruments (below G3) with a weak content in higher partials by notating a greater value of dynamics in the score. The same would apply for higher range of frequencies (above G8).²⁰

²⁰ Even though there are no instruments in the orchestra which produce such high notes, we should note that the first partials of high instruments such as the piccolo, glockenspiel, or violin when playing harmonics, are already in that range and can therefore weaken perceptions of the pitch and timbre.

Movement 2: *Titanium*

In contrast to the previous movement, *Titanium* is characterised by an unstoppable light and vivid musical flow, which undergoes a process of saturation before finally disappearing. The two most useful properties of Titanium are corrosion resistance and the highest strength-to-density ratio of any metallic element. Again, this movement takes its character from the special use of instrumentation and superposition modes: the movement begins with a stream of notes combining the highest register of the accordion with a fast tremolo of brushed crotales, see fig. 49.

The musical score for Movement 2: *Titanium* is presented in two staves. The top staff is for Percussion (Crotales) and the bottom staff is for Accordion (Acc.). The Percussion part features a fast tremolo of brushed crotales, marked with a 'Crotales' icon and a 'legato' marking. The Accordion part features a stream of notes, marked with a 'legato' marking. The score is divided into four measures, each containing a 6/5 ratio of notes. Dynamics range from *ppp* to *pp*. The notation includes various musical symbols such as notes, rests, and dynamic markings.

fig. 49

Note the use of “quasi-unison” and “quasi-synchronized” techniques, 6 against 5 tuplets tracing two closely intertwined lines. Dynamics are also in the same range and evolving simultaneously. This continuous flow is highlighted by resonating notes, i.e. those contained in the stream but in a contrasting dynamic and playing technique. The rest of the instruments become resonating bodies of the percussion attacks (see bars 47-48, fig. 50).

The musical score for Figure 50 is a multi-staff arrangement for a chamber ensemble. It includes staves for Clarinet (Cl.), Saxophone Alto (Sax. A.), Percussion (Perc.), Accordion (Acc.), Violin (Vln.), and Cello (Cb.). The music is written in 4/4 time and features a high density of notes, particularly in the Percussion and Accordion parts, which use many sixteenth and thirty-second notes. Dynamics are marked throughout, including *mp*, *ppp*, *pp*, *sfz*, and *mf*. Performance techniques are indicated, such as *bisbigliando* (timbre trill) for the winds. The score is marked with a circled 47 at the beginning and end.

fig. 50

Particular performance techniques, such as the *bisbigliando* (timbre trill) in the winds and harmonic trills in the strings combine perfectly with the subtle texture of the crotales and the accordion. In the following bars (bars 54-70) until letter I, the density of the stream of notes increases. This process is achieved by superposing layers of material. The overall character of the ensemble in this movement is frenetic, which could be understood as the TSU *Inexorable Trajectory*. In bar 79, the global ascension reaches the top register of the accordion and all the instruments saturate the narrow space in *ff* dynamic. At J, a bouncing rhythmic pattern concentrates the energy accumulated in the previous bars and dissipates it with a *rallentando* effect, a dilation of the temporal space in contrast with a *pppp* volatile background (see fig. 51). This

process liquidates the material, which remains delicate and thin until the end of this movement.

The musical score is for measures 82 through 85. The instruments and their parts are as follows:

- Cl. (Clarinet):** Measures 82-85. Measure 82 has a circled number 82. Measures 83-85 are marked *pppp*. Above measures 83-85, there are markings: *bisb. o ≡ •* and *bisb. o ≡ •*.
- Sax. A. (Soprano Saxophone):** Measures 82-85. Measure 82 has a circled number 82. Measures 83-85 are marked *pppp*. Above measures 83-85, there are markings: *bisb. o ≡ •* and *bisb. o ≡ •*.
- Perc. (Percussion):** Measures 82-85. Measures 82-83 have a circled number 82. Measures 83-85 are marked *pppp*. Above measures 83-85, there are markings: *ppp > pppp* and *ppp > pppp*.
- Acc. (Accordion):** Measures 82-85. Measures 82-83 have a circled number 82. Measures 83-85 are marked *pppp*. Above measures 83-85, there are markings: *bisb. o ≡ •* and *bisb. o ≡ •*.
- Vln. (Violin):** Measures 82-85. Measures 82-83 have a circled number 82. Measures 83-85 are marked *pppp*. Above measures 83-85, there are markings: *bisb. o ≡ •* and *bisb. o ≡ •*.
- Cb. (Cello):** Measures 82-85. Measures 82-83 have a circled number 82. Measures 83-85 are marked *pppp*. Above measures 83-85, there are markings: *bisb. o ≡ •* and *bisb. o ≡ •*.

The score includes various musical notations such as notes, rests, and dynamic markings. A large bracket labeled 'J' spans measures 83-85. The score is presented in a complex, overlapping manner with many annotations.

fig. 51

Movement 3: *Oxygen*

Oxygen is a very slow and stable movement. The accordion plays a constant *pppp* A4 pitch throughout. The rest of the instruments coat this thin line arousing inner frictions, mainly by the multiphonics of the clarinet and saxophone and the violin double stops, also using A4 as a pivot note (see fig. 52).

Oxygen ♩ = 50

Senza tempo

3/4 4/4

Cl. (cassotto) ~ 7

Acc. *pppp*

Vln. *pppp* *ppp* *pp* *pp* *p* *ppp*

99

103

Sax. A. *ppp* *mp* *pp* *p*

Acc. (*pppp*)

Vln. *pp* *p* *p* *p* *pp* *ppp* *p* *ppp*

103

fig. 52

The atmosphere is frequently broken (at bar 108, 112 and 114) with bursts of accentuated figures drawn from the instrumental synthesis of the saxophone and

violin, plus an additional weight given by the *pizz.* of the double bass with the vibraphone (see fig. 53).

The musical score for the *Oxygen* movement, measures 110-125, is presented in a 6-staff format. The instruments are Clarinet (Cl.), Saxophone A (Sax. A.), Percussion (Perc.), Accordion (Acc.), Violin (Vln.), and Double Bass (Cb.). The key signature is 3 flats (K) and the time signature is 3/4. The score shows a dramatic ending with a succession of gestures, including multiphonics and double stops in the strings, and an enigmatic bending effect of the accordion on the very last note. The score is marked with various dynamics (pp, p, mp, mf, f) and articulations (pizz., gliss.).

fig. 53

The *Oxygen* movement ends dramatically with a very active succession of gestures followed by a peaceful compound sound (multiphonics + double stops in the strings) and the enigmatic bending effect of the accordion on the very last note.

Bar 125 is a perfect example of “molecular” compositional techniques, in which each element is bonded to one other (see fig. 54).

A solid type of bond occurs in the case of superposition modes D and F (see 2.7.2 Superposition modes). These linking modes do not uniquely bind the energetic actions of the instrumentalists together but allow them to comprehend the task of creating a new compound sound. Especially in bar 125, it is necessary that the instrumentalists understand where and what the other instruments are playing. I have realised through this that my music requires extra time in rehearsals for this process of “spatial” awareness to happen.

The image displays a complex musical score for a multi-instrument ensemble, specifically focusing on measures 125 and 126. The score is written for the following instruments: Clarinet (Cl.), Saxophone Alto (Sax. A.), Percussion (Perc.), Accordion (Acc.), Violin (Vln.), and Cello (Cb.). The time signature is 4/4, and the key signature has one sharp (F#). The score is characterized by dense, overlapping musical lines and a variety of dynamic markings, including *sfz*, *ff*, *pp*, *mf*, *f*, *ffz*, *ppp*, *mp*, and *mf>pp*. There are also performance instructions such as *arco*, *pizz.*, *s.p.*, *gliss.*, *m.s.t.*, and *bisb.*. The score includes numerous slurs, ties, and other musical notations that suggest a highly textured and complex sound. The layout is dense, with many notes and markings overlapping across the staves, reflecting the 'superposition modes' mentioned in the text.

fig. 54

Movement 4: *Magnesium*

This movement illustrates many different types of gesture. In the first bar of *Magnesium*, a mosaic of natural harmonic sounds from the strings establishes the background in which new gestures will be framed. In order to fulfil such an intricate cloud of sounds without a tonal aura and to obtain the maximum amount of different natural harmonics, the conventional tuning of the open strings of the violin and double bass has to be modified. Due to the tuning system in fifths of the violin (E-A-D-G) and in fourths of the double bass (G-D-A-E), the natural harmonic series of both instruments has a lot of common notes. For the sake of pitch diversity, two strings of the violin are detuned: E to D# and G to G# and the second string of the double bass D to C#. As shown in fig. 55, the rhythmic structure of the strings is built using differing tuplet divisions; hence all the rhythms are asynchronous between the violin and double bass. The percussion also follows irregular rhythmic patterns. This is a paradoxical musical background, in that its constant change is only at the micro level, yet the macro perception is static. This is an example of the TSU *Stationary*. Over this canvas, the saxophone and accordion play in tandem using superposition modes F and I.

At letter O, the character of the TSU *Obsessive* emerges via cadenced sequences of short ***sfz*** strokes. These impulses are created through violin *ecrasé* sounds (high bow pressure) and double bass, *arco* and *pizz.* *Bartok*. At letter P, the accordion joins in with quasi-cluster chords in exactly the same note range as the violin. The clarinet, saxophone and percussion also start to play in alternating sequences (see fig. 56).

L

fig. 55

(156)

3 P

fig. 56

Movement 5: *Sulphur*

The fifth and final movement uses heavy, loud and violent articulations at the lowest register of the bass instruments of the ensemble extensively. It fits well with the descriptors of the TSUs *Heaviness* and *Momentum* (see fig 57).

[illegible]

fig. 57

2.8 Instrumental use of the voice

I am deeply fascinated by linguistics, especially phonetics. *Shī* and *Eimai* share a common approach to phonemes, an instrumental use of the voice.

2.8.1 Case study: *Eimai*

As a child, I often visited my grandmother Mercedes's house in Barcelona with my family. She was a tall and very kind woman, always with a smile on her face and strong but modest manners. Sadly, she started to suffer from Alzheimer's disease after my grandfather's death. I was studying in Paris when she was diagnosed with this neurodegenerative disease and the gaps between my visits to Barcelona caused me to notice the deteriorating advance of her dementia very clearly. However, during the whole course of her illness I never doubted the presence of her soul, somehow veiled by her mumbling voice.

While attending the ManiFest summer academy in Paris in 2013, I was requested to compose a piece for the Exaudi Vocal Ensemble. The process of Mercedes's loss of speech inspired the piece and it was conceived as an emotional response to the intense situation of those years. The work consists of a phonetic path from "easier" to "harder" phonemes, culminating with a final and only word with an explicit meaning - "*Ich*", which means "I" in German and symbolises the presence of the immortal soul. The title *Eimai* (in Greek, εἰμαι means "am", the first singular person form of the present tense of the verb "to be").

The text is the result of a pseudo-randomised process using a computational algorithm written in MaxMSP (see appendix, 5.2 Text of *Eimai*); the “words” have been constructed using a palette of phonemes ordered by the physical effort implied in their phonation. The computer then chose random combinations of those phonemes starting with /ɾ/ (softer version of /r/), /h/, /l/ and /ʌ/. These consonants offer a short obstruction to the vocal flow; the tongue slightly blocks the passage of the stream of air. The text gradually introduces harder consonants, such as /b/, /g/, /ʒ/ and /ð/, and ends by progressing to the hardest consonants /k/, /t/, /p/, /ʃ/ and /χ/, (see appendix for the IPA chart).

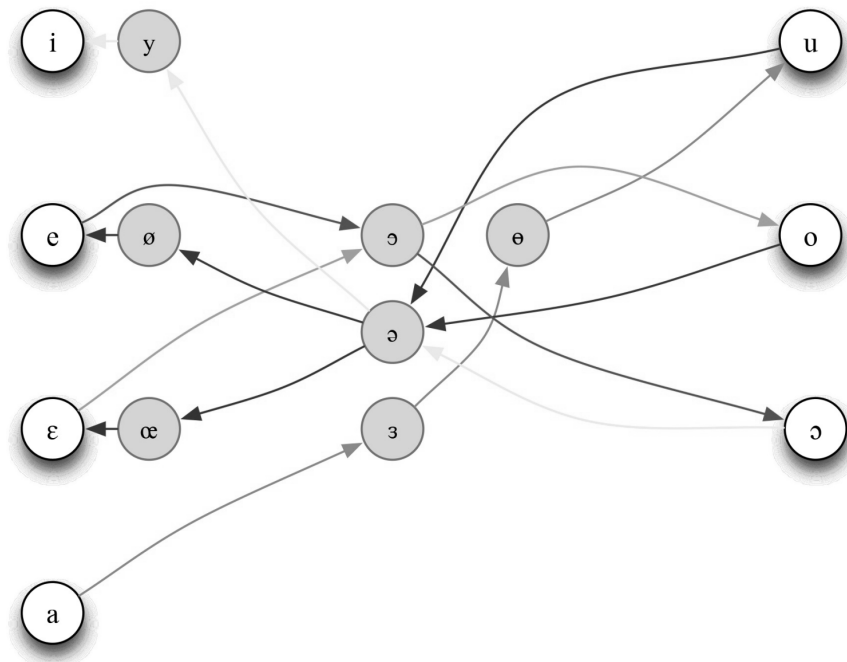


fig. 58

In a similar manner, vowels are distributed following a precise path on the vocalic plane (see fig. 58). We start with /a/, the simplest and first phoneme that babies articulate, and we end with /i/, a vocalic sound that demands a more focused attention due to a closer and tenser position of the tongue and also symbolizes the

“I”, i.e. the word “ich”. Note that in fig. 58 the vocalic trajectory is continuous; each step can be reached by a minimal change of the vocal cavity.

Harmony also plays an important role in this piece, which begins with clear, static polymodal chords and progresses into intervallic figurations, ending with pure rhythmic and pitchless patterns.

2.8.2 Case study: *Shī*

My fascination for languages arises from a curious musical ear that has been trained to elucidate the intrinsic properties of sound, even when this is not produced with a musical intention.

This attitude towards language conditions the manner in which I use text in my process of composition. As in the piece *Eimai*, I consider the voice to be an instrument which produces vowels and consonants, or phonemes more generally. These constitute an essential part of the vocal performance techniques used in this piece. The use of a specific text, then, becomes a process of analysis and reconstruction in which the semantic content is reduced to a minimum.

On this occasion, I have chosen an old Chinese poem which uses only the phoneme /ʃi/ repeatedly. Chinese is a tonal language and has four tonemes for every vowel. There are four different melodic contours, depending on the direction of the tone of the voice: ascending, /ʃí/ - descending, /ʃì/ - descending and ascending, /ʃǐ/ and flat, /ʃī/. The first gestures of the piece strictly follow the contour of the tonemes of the first sentence of the text. The piece starts with unison on the first syllables of the poem

(/j̥i̥ j̥i̥ j̥i̥ j̥i̥ j̥i̥ j̥i̥ j̥i̥ j̥i̥ j̥i̥ j̥i̥/...), but the density rapidly increases into two voices (see bars 1-10). From bar 12, however, I stopped using the text and started to develop the material by augmenting the density of the mass by using *divisi a 5* in bar 12, *divisi a 7* in bar 14 and finally *a 8* in bar 15. The result of this progression is a thickening process of the material. The microtonal inflection of the first bars transforms into semitones in bar 6 and becomes wider still in bar 17, where the first melodic interval of a minor third appears.

fig. 59

At rehearsal mark B, the minor third from the previous section becomes thematic through a proliferation of trembling figures. They superpose onto the initial gesture /j̥i̥/. A new phoneme is introduced at letter C, bars 34-35. Although the voices alto 2 and alto 2b are still sounding /j̥i̥/, altos 1 are sounding /i̥/ and the sopranos, /e̥/. In these two bars the whole choir creates a compound syllable /j̥ieaoe̥/ displayed in a total range of two octaves (low G to high Gb) (see fig. 59).

From letter D to the end of bar 43, a process of accumulation, still on the vowel /i/, leads to the next section *Glaçat* (“Frozen”). These five bars introduce all five basic vowels but in an intermittent texture; all voices sing with a closed mouth on a /m/ and suddenly open the mouth for a short and accented pronunciation of a vowel (see fig. 60). Vowels are distributed from bottom to top following the decreasing pattern /i-e-a-o-u/ that is, from the higher third formant /i/ (3310Hz) to the lower third formant /u/ (2670Hz) (see Table 3 – Women formants in appendix). Consequently, such distribution balances out the spectral weight of the voices; the altos’ /i/ sounds brighter than the sopranos’ /u/.

The final sections E and F progressively introduce variations of the initial /j/ sound, such as /ʒ/ and /z/ in a more sonorous manner. From bar 56 until the end of the piece, all the elements employed throughout are re-introduced.

Glaçat

44 ♩ = 50

3
4

fig. 60

3. Astrophysics and the use of electronics

Composers have used many ideas as a source of inspiration, commonly other arts such as literature, poetry, painting, dance or music itself. Yet, beyond this, nature is also a frequent stimulus for composition, due to its rich sonic landscape.

Among the different sciences which attempt to explicate natural phenomena, physics is especially appealing to me, thanks to its concrete implications in universal paradigms, and therefore also in music, especially in acoustics. My specific interests in physics have always been astronomy and astrophysics. The evocative descriptions of galaxies, the birth and death of stars and the peculiar characteristics of comets, planets and other objects have influenced me since my youth. In this portfolio, *ISON*, *Mira* and *Algol* have been inspired by astronomical phenomena.

Since my composition studies in Paris, another of my primary interests has been electronic music. However, as electronics is not in the range of competences provided by King's College Music Department, only two pieces of the portfolio contain electronics. I have limited this to tape, for *Kemuri*, and a simple MaxMSP patch, for *Mira*.

3.1 Case study: *Algol*

Algol was conceived as a piece to be performed in a final examination for the master's degree of a tubist at the Paris Conservatoire. It had to encompass the full expressive variety of this instrument in a soloist role. I decided, however, to add another tuba and an euphonium and compose a trio. The idea for a trio was inspired by my

discovery of a ternary solar system named *Algol*. The three stars rotate around a common centre of gravity. This idea is translated into the first bars of the piece, with the three parts playing around the centre B-C in three different octaves. The distance from this gravitational centre eventually becomes B-F at letter B (bar 30). The activity of the three parts increases and the distance between the parts decreases to a semitone cluster at bar 59. In section D, I distributed the full chromatic scale among the three parts, with each receiving four pitches, which they then disperse in a scattered manner. A lyrical section starts at F, where a gentle melody – a sort of bird call – is presented. In section G, the players sing into their instruments to explore the multiplicity of having six parts. I was especially interested during composition in the special change of timbre that is produced by this. In H, the third tuba, the soloist, uses a harmonic technique that I discovered working with Maxime Morel, the dedicatee of this piece: a technique that he masters to perfection. This technique consists in filtering the sound of the tuba, strengthening certain higher partials of the sound. The piece ends with a short use of flutter tongue and quick virtuoso ascending gestures, climaxing at the top register of all three tubas (in treble clef).

3.2 Case study: *ISON*

ISON was commissioned by Musica QuLacoza, a Japanese ensemble. When looking for inspiration, I read in the astronomical news that a comet recently discovered in 2013 could potentially become the



brightest ever observed in modern history. Its name is ISON. Its predicted trajectory was exceptional, it would come very close to the sun and after this, it would pass near the Earth, shining with a brightness comparable to the moon. I used my elementary knowledge of comets to start planning the form of the piece. The flute would be the frozen core of the comet, the strings its tail and the piano the sun. During its approaching trajectory to the sun, the comet becomes progressively brighter, because solar radiation starts melting the core. At the beginning the comet has almost no tail and its brightness is dim, so the flute and strings are minimally active. I found it appropriate that the strings should start playing harmonics with very soft bow pressure to give the impression of an icy dust surrounding the sound of the flute. The piano-sun, remains relatively inactive as the comet is still far away. The flute-core continues to approach the piano, causing its brightness (dynamics) and activity to increase. The strings-tail start acting as a form of resonance (a sort of acoustic tail) for the notes played by the flute (see fig. 61). This process continues to a point of maximum musical activity, which has its climax at the point at which the distance to the Sun is minimal.

The musical score for Figure 61 is a multi-staff composition for Flute (Fl.), Violin (Vl.), Viola (Vla.), Violoncello (Vc.), and Piano (Pno.). The score is organized into four measures with time signatures of 4/4, 3/8, 4/4, and 3/4. The Flute part begins with a triplet of eighth notes marked *sfz*, followed by *mp* and *pp* dynamics. The Violin and Viola parts feature sustained chords and melodic lines with dynamics ranging from *ppp* to *mf*. The Violoncello part includes a *pizz.* (pizzicato) instruction and a *arco* (arco) instruction. The Piano part provides harmonic support with chords and single notes, marked with dynamics like *mf*, *mp*, and *p*. The score includes various musical notations such as triplets, slurs, and dynamic markings (*sfz*, *mp*, *pp*, *ppp*, *p*, *mf*, *f*). There are also performance instructions like 'flz.', 'arco', and 'N. 63'.

fig. 61

At that time, I did not know if the comet ISON would survive its close encounter with the sun. A few experts had estimated that the chances were low if the comet was insufficiently large. The form of the piece therefore needed somehow to remain open, in order to emulate the uncertainty of the comet's fate. Ultimately, ISON did not survive its encounter with the sun.

3.3 Case study: *Mira*

Mira is similar to *Algol* in its conception: both are multiple solar systems. In this case, *Mira* is a binary system with the particularity that one of its stars is significantly bigger than the other. The name, from the Latin “mira” means marvellous, or stunning, derives from the solar system’s drastic fluctuations of brightness; from being invisible to naked eye to be one of the brightest stars of the constellation of *Cetus* within a period of 332 days. In fact, the giant star is devouring the smaller and both are travelling in space at a tremendous pace.

This piece was commissioned by the talented duo UMS n’ JIP and performed in Barcelona as part of the Mixtur Festival in 2013. Here, I decided to designate the role of the massive star to the voice. Both performers start within similar dimensions (dynamically equal) at a fast pace (high tempo) (see fig. 62).

4 Molto fluido
4 ♩ = 120
molto legato

Sub-bass in F Recorder
mp *mf* *mp*

Voice
mf *mp* *mf*
[v u v o v u v e v o v a v i v

Electronics
①

fig. 62

A simple MaxMSP patch generates a bank of sinusoidal oscillators with frequencies varying randomly. It also captures the sound of the recorder and voice and reproduces it via a system of eight loudspeakers surrounding the audience. The digital process consists, essentially, in a multiple delay, with variable feedback that generates an acoustic sensation of space (see fig. 63). However, due to the use of dedicated software components (MaxMSP third party objects), the piece cannot be performed without the use of my own laptop and as such purely acoustical version is what I have had to provide here.

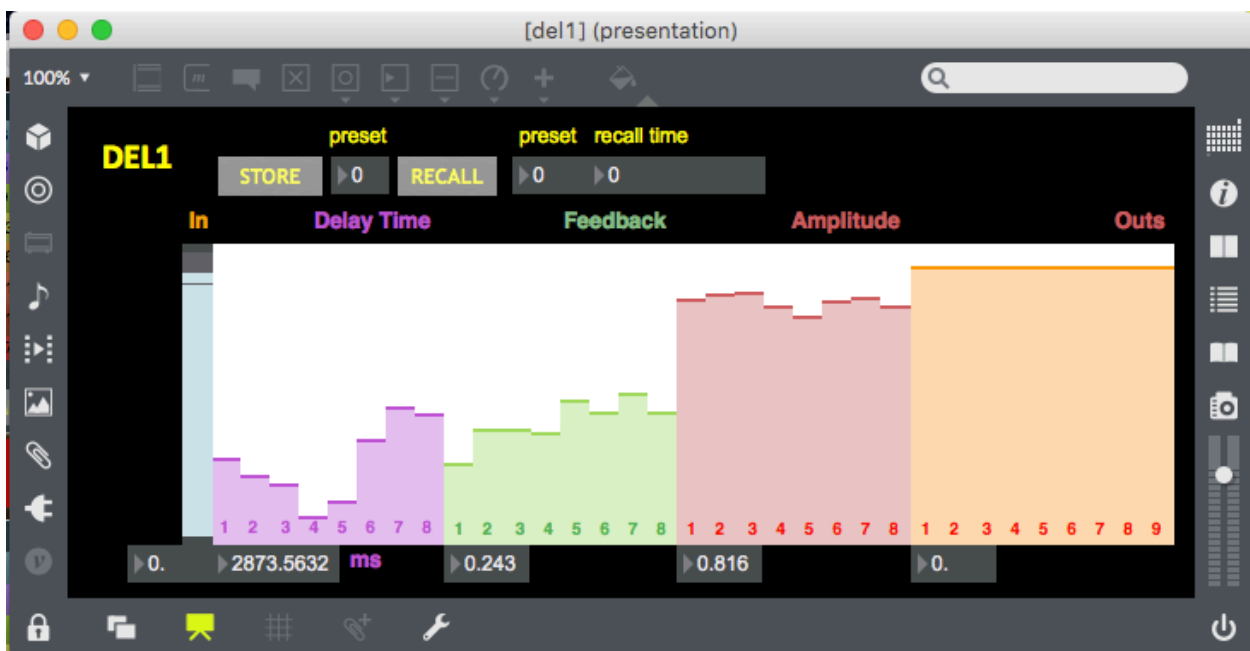


fig. 63 - multiple delays module in MaxMSP

The formal structure of the piece is very simple; the register of the singer gradually decreases and the timbre of their voice becomes stranger and more unnatural, while the recorder, in contrary motion, transitions from the sub-bass recorder to basset recorder, alto recorder and ends with the sopranino.

3.4 Case study: *Kemuri*

Kemuri was originally conceived for piano and live electronics. The title describes the relationship between the electronic part and the piano, which acts as an original “flame” and from which the electronics emerge, like “smoke” (in Japanese *kemuri*). The “smoke” takes on the role of protagonist towards the middle of the piece, filling most of the acoustic space and progressively eclipsing the activity of the piano.

As a metaphor, the “flame” will gradually die as a consequence of the lack of oxygen of the “room” (acoustic space), represented by the repeated notes in the highest register of the piano (see fig. 64).

The figure displays three staves of musical notation for the piece *Kemuri*. Each staff is preceded by a circled number (37, 38a, 38b, 39) and a time marker in a box. The first staff (37) is marked 'Free, no tempo' and '煙' (kémuri). It features a series of repeated notes in the highest register, with a duration of approximately 7 seconds. The second staff (38a, 38b) shows a transition from 'fff' to 'ppp' and back to 'fff', with a duration of approximately 7 seconds. The third staff (39) shows a transition from 'fff' to 'ppp' and back to 'fff', with a duration of approximately 11 seconds. The score includes time markers (6:13, 6:20, 6:28, 6:35, 6:43, 6:45) and duration markers (~7\", ~2\", ~11\").

fig. 64

In section 5.5. of the appendix, a view of the MaxMSP patch is provided. It consists of a “smart” score follower that detects the pitch, the attacks and the brightness of the piano sound captured by a microphone and triggers the playback of the sound files stored in the computer accordingly.

4. Epilogue

This portfolio has arisen from my personal interests in acoustics, semiotics, computer assisted composition, phonetics and astrophysics. I tested the limits of using the TSU framework for composition, resulting in a satisfactory methodology that can effectively stimulate the proliferation of musical gestures.

Additionally, putting techniques of instrumental synthesis, such as superposition modes and bonding strategies, into practice have proven to be very effective in obtaining timbral music that can be approached with an acousmatic listening attitude.

Future research steps will be oriented towards new forms of performance strategies and computer-based notation. There are possibilities for extending TSU usage to bodily gestures, incorporating them into the musical narrative via computerised motion capture. In relation to this, I will study machine learning with the prospect of using a ZIL²¹ (a wireless motion capture device developed in France by DaFact), that I recently acquired, with the intention of using it for live performances.

²¹ <https://www.youtube.com/watch?v=NfqpCVniesI&feature=youtu.be>

5. Appendix

5.1 Vocal formants

Formants are the spectral peaks of the sound spectrum. They are acoustic resonances of the human vocal tract, enhanced frequency components of the acoustic signal produced by speech or singing. There are three principal frequencies used by the brain to articulate a vowel; F_1 , F_2 , F_3 . The following charts show the average formants for men and women.

| Formant | /i/ | /e/ | /a/ | /ɔ/ | /o/ | /u/ |
|---------|------|------|------|------|------|------|
| F1 | 270 | 530 | 660 | 730 | 570 | 300 |
| F2 | 2290 | 1840 | 1720 | 1090 | 840 | 870 |
| F3 | 3010 | 2480 | 2410 | 2440 | 2410 | 2240 |

Table 2 - Men formants

| Formant | /i/ | /e/ | /a/ | /ɔ/ | /o/ | /u/ |
|---------|------|------|------|------|------|------|
| F1 | 310 | 610 | 860 | 850 | 590 | 370 |
| F2 | 2790 | 2330 | 2050 | 1220 | 920 | 950 |
| F3 | 3310 | 2990 | 2850 | 2810 | 2710 | 2670 |

Table 3 – Women formants

5.2 Text of *Eimai*

A. Sleepy, enchanted ♩ = 50

a-ra-a ha-ha-a a-a, a-a ra-a a-a a-ra a-a? ha a-ha.
 a-ra ha-a-ra-a-ha, ha a-a-ra-ra ha-ra-a, a ra-a ra-a? a ha-a-ra-a, a-a a-ra-a.
 a-ra la-ra!
 ra-3 r3, 3-3, l3-l3 r3, 3 l3 la-ra l3, 3-3-ra!
 l3-ra ra l3-ra, 3 a-ra-r3 ra-ra r3, l3-ra ra-l3 ra-ra la-la ra.
 ʌə, ʌə-v3 ʌ3-v3, və-3 l3-və v3 lə-və,
 ʌ3, ʌə-və ə-ə və,
 v3-ə 3 3-ə 3-ʌ3 ə-və ə-3 3-3, ʌ3-l3 ə-3-və.

b. Awakening ♩ = 60

h3 ɲə-r3 hɲə-a ɲə ɲa-ɲa, ə ə-ɲa, ə əɲ-a ə-ra ra-ha-ra,
 rə-r3 ɲə 3-r3 ha-rə ra-a, ə ɲ3-a r3ɲ-a ha-3ɲ-a,
 3 ɲ3ɲ-a ɲ3-ra-ə 3-ra, ha-3 hɲə-3-ra hɲə-3 ɲə-ha, ha-r3-ha ɲa-ha,
 ə ɲə-ha a-hə ə-3 ɲ3ɲ-a a h3ɲ-a, rə-h3 h3 ra-h3 ɲaɲ-a.

C. Sweet ♩ = 70

lə-ru u-və u-u u-ru-u, ə-və-ru ru-və-rə lə-və vu-vu ə,
 ə-vu-rə-u u-və rə rə-və, ə-lu u lu-lu lu.
 xu hu-hu hu-u u-xu u-xu-xu,
 hu u-xu xu-hu hu-xu-hu u xu-hu, hu hu-hu u-xu.
 ʈu-ə ʈu-ʈə, glu-glə gu-gə glə u-gə.
 ʈu-glə ʈə-glə glu-ə ə ʈu-ə gu ʈu-ə glə-ʈu,
 ʈu ʈu-ʈu glu-ʈə ə u-ʈə ʈu u-ʈə glu-ʈə ə gu-ʈə glu-gə ʈə.
 ʈə-xə dʒə ʒə-xə ə-ʒə.
 ʒə-dʒə ʒə-ʒə dʒə-ə-ʒə xə ʈə-ʒə xə-xə ə-ʒə ʈə-ʈə-xə.
 ʈə-ʈə ə ʒə-ʈə xə xə-ʈə ə dʒə-ʈə.

D. Choral ♩ = 52

ɛ-hɛ ɛ, ɛ-hɛ hɛ-ɛ;
 xɛ ɛ-ɛ gɛ ɛ-ɛ, xɛ-ɛ xɛ ɛ-ɛ.

℄. Babbling ♩ = 60

gle-ge ge gre-ge ne-e.

gle-ge e-ge gle e-ge, e-e gle-ne e ge-ne gre-e.

e-ge gle-ne gre e-ne, gle gle-ne e e-ne.

ðe ðre-ge ə ðə-ge ðe-e, mə-χə χe nə-χə e ðe-χə ne e-χə χə-ə.

f. Enigmatic ♩ = 60

o gro-o glo θo-o, fo θə-o o-fə o fə-fə fə glo-fə, glo-o gro θo-o θo-θo.

go no-glo go o-glo, glo glo-glo go-mo no-mo, mo o-mo no-go.

do-o dro-mo, dro do-mo, do-do mo-mo.

§. Ghostly ♩ = 70

kə-klə-klə kə-klə-kə klə-klə, brə-kə ə-klə.

brə grə, grə-prə ə prə-prə, kə-gə ə-ə.

gə krə-ə ə.

ə-tʃə tʃə ʃə-tʃə, tsə-tʃə tsy-ə tʃy.

dʒə-ry dʒə rə ry,

h. Exasperated ♩ = 110

χə-χə y rə-χə!

ʃy!

ʃy-ʃə tsə, y-ʃə, gry!

krə-gri, krə y-gri!

krə-i, kry y-kri!

kry i-kri bry, kri!

kri-χi!

χi-kri, i-pri i kri-pri,

ICH!! (iχ)

5.4 ISON natural harmonics chart

ISON String natural harmonics

Daniel Figols-Cuevas 2013

Violin

Scordatura

Viola

Scordatura

Cello

Scordatura

5.5 *Kemuri* MaxMSP patch

This is the look of the real time MaxMSP patch for *Kemuri*. A resonator and a sound file player were the main modules. The original idea of this patch was to build a smart detection algorithm (detection of attacks, brightness, pitch, energy and harmonicity of the piano input sound) that would follow the score and give total freedom to the performer. However, for practical reasons, a tape recording and a click track are given with the score in the portfolio.



fig. 65

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Väri

for small ensemble
(2013)

Conductor score

Daniel FÍGOLS-CUEVAS



contact@danielfigols.com

Väri

(2013)

Instrumentation:

Clarinet in B \flat (Bass Clarinet)

Trumpet in C

Horn in F

Trombone

Piano

Vibraphone (Tam-Tam)

Accidentals

♯ one quarter tone higher

♭ one quarter tone lower

𝄌 three quarter tones higher

𝄎 three quarter tones lower

Score in C
Accidentals apply to the entire bar.

Väri
for ensemble

Daniel FÍGOLS - CUEVAS
2013

5
4

4
4

3
4

Clarinet in B \flat
(Bass Clarinet)

Trumpet in C

Straight mute
Horn in F

Straight mute
Trombone

Piano

Vibraphone
Tam-tam



B \flat Cl.

C Tpt.

Hn.

Tbn.

Pno.

Vib.

Väri
accel.

3 2 3 4 2
4 4 8 4 4

8

B♭ Cl. *f* *fpp* *f* *fpp* *mf* *p*

C Tpt. *f* *fpp* *f* *fpp* *mf* *p*

Hn. *f* *fpp* *f* *fpp* *mf* *p*

Tbn. *f* *fpp* *f* *fpp* *mf* *p*

Pno. *f* *mp* *f* *mp* *p*

Vib. *f* *pp* *f* *pp* *mp*

A

4 4
♩ = 70

13

B♭ Cl. *mf* *f > p* *mf* *f > p* *mf* *f > p* *mf* *f > p*

C Tpt. *f > p* *mf* *f > p* *mf* *f > p* *mf* *f > p* *mf*

Hn. *f* *pp* *f* *pp*

Tbn. *pp* *mf* *pp* *mf* *pp*

Pno. *pp* *mf* *pp* *mf* *pp* *mf* *pp*

Vib. *f* *f* *f* *f*

[illegible]

[illegible][illegible]

45

B. Cl.

gliss.

pp pp p mf p mf ppp

C Tpt.

mf pp p mf pp p ppp

Hn.

mp mp p ppp

Tbn.

mp pp mp pp p pp ppp

Pno.

45

mp p mp

Vib.

45 (Bows) p

molto rit.

E

♩ = 50

Frozen

15^{ma}

59 $\sim 2''$ $\frac{4}{4}$ $\text{♩} = 70$

B. Cl. $\sim 2''$ $\sim 3''$

C Tpt. $\sim 2''$ $\sim 3''$

Hn. $\sim 2''$ $\sim 3''$

Tbn. $\sim 2''$ $\sim 3''$

Pno. $\sim 2''$ $\sim 3''$

Vib. $\sim 2''$ $\sim 3''$

ppp poss. sing ppp gliss. p gliss. ppp 15^{ma} pp p p mp mp

(Reo.) * Reo. Bows

p p

64 $\sim 5''$ $\frac{4}{4}$ $\text{♩} = 60$ G# F#

B. Cl. $\sim 5''$ muta Clarinet

C Tpt. $\sim 5''$

Hn. $\sim 5''$

Tbn. $\sim 5''$

Pno. $\sim 5''$

Vib. $\sim 5''$

ppp sing ppp pp ppp gliss. pp gliss. ppp 15^{ma} 8^{va} pp p pp 3 pp 3 mp mp mp

Reo. Reo. Bow

pp pp



Ειμαί

for vocal ensemble

(2013)

for Ensemble Exaudi

-

Daniel FÍGOLS-CUEVAS

contact@danielfigols.com

*to my grandmother Mercedes,
and all those who care with their constant and generous love Alzheimer patients...*

Εἶμα

text and pronunciation indications

Α. Sleepy, enchanted ♪ = 50

a-ra-a ha-ha-a a-a, a-a ra-a a-a a-ra a-a? ha a-ha.
a-ra ha-a-ra-a-ha, ha a-a-ra-ra ha-ra-a, a ra-a ra-a? a ha-a-ra-a, a-a a-ra-a.
a-ra la-ra!
ra-3 r3, 3-3, l3-l3 r3, 3 l3 la-ra l3, 3-3-ra!
l3-ra ra l3-ra, 3 a-ra-r3 ra-ra r3, l3-ra ra-l3 ra-ra la-la ra.
Λθ, Λθ-v3 Λ3-v3, vθ-3 l3-vθ v3 lθ-vθ,
Λ3, Λθ-vθ θ-θ vθ,
v3-θ 3 3-θ 3-Λ3 θ-vθ θ-3 3-3, Λ3-l3 θ-3-vθ.

Β. Awakening ♪ = 60

h3 ηθ-r3 ηθ-η-a ηθ η-a-ηa, θ θ-ηa, θ θ-η-a θ-ra ra-ha-ra,
rθ-r3 ηθ 3-r3 ha-rθ ra-a, θ η3-a r3η-a ha-3η-a,
3 η3η-a η3-ra-θ 3-ra, ha-3 ηθ-3-ra ηθ-3 ηθ-ha, ha-r3-ha ηa-ha,
θ ηθ-ha a-hθ θ-3 η3η-a a h3η-a, rθ-h3 h3 ra-h3 ηaη-a.

Γ. Sweet ♪ = 70

lθ-ru u-vθ u-u u-ru-u, θ-vθ-ru ru-vθ-rθ lθ-vθ vu-vu θ,
θ-vu-rθ-u u-vθ rθ rθ-vθ, θ-lu u lu-lu lu.
xu hu-hu hu-u u-xu u-xu-xu,
hu u-xu xu-hu hu-xu-hu u xu-hu, hu hu-hu u-xu.
ðu-ə ðu-ðə, glu-glə gu-gə glə u-gə.
ðu-glə ðə-glə glu-ə ə ðu-ə gu ðu-ə glə-ðu,
ðu ðu-ðu glu-ðə ə u-ðə ðu u-ðə glu-ðə ə gu-ðə glu-gə ðə.
ðæ-xæ dʒæ ʒæ-xæ ə-ʒæ.
ʒæ-dʒæ ʒə-ʒə dʒæ-ə-ʒə xæ ðə-ʒə xə-xæ æ-ʒə ðə-ðə-xæ.
ðə-ðə ə ʒæ-ðə xæ xə-ðə æ dʒə-ðæ.

Δ. Choral ♪ = 52

ε-ηε ε, ε-ηε ηε-ε;
ξε ε-ε γε ε-ε, ξε-ε ξε ε-ε.

C. Babbling ♩ = 60

gle-ge ge gre-ge ne-e.

gle-ge e-ge gle e-ge, e-e gle-ne e ge-ne gre-e.

e-ge gle-ne gre e-ne, gle gle-ne e e-ne.

ðe ðre-ge ə ðə-ge ðe-e, mə-χə χe nə-χə e ðe-χə ne e-χə χə-ə.

f. Enigmatic ♩ = 60

o gro-o glo θo-o, fo θə-o o-fə o fə-fə fə glo-fə, glo-o gro θo-o θo-θo.

go no-glo go o-glo, glo glo-glo go-mo no-mo, mo o-mo no-go.

do-o dro-mo, dro do-mo, do-do mo-mo.

S. Ghostly ♩ = 70

kə-klə-klə kə-klə-kə klə-klə, brə-kə ə-klə.

brə grə, grə-prə ɔ prə-prə, kə-gə ɔ-ɔ.

gə krə-ə ɔ.

ɔ-tʃə tʃə ʃə-tʃə, tsə-tʃə tsy-ɔ tʃy.

dʒə-ry dʒə rə ry,

h. Exasperated ♩ = 110

χə-χə y rə-χə!

ʃy!

ʃy-ʃə tsə, y-ʃə, gry!

krə-gri, krə y-gri!

krə-i, kry y-kri!

kry i-kri bry, kri!

kri-χi!

χi-kri, i-pri i kri-pri,

ICH!! (iχ)

Pronunciation Indications:

Vowels:

The phonetic path for vowels in the text is gradual, as indicated on diagrams 1 and 2; difference from one vowel to the other are continue by changing mouth and tongue position. It could be useful to practice the vocalic path previous to start working on the text used on the score.

The correspondence with english words is the following:

/ a / → father

/ ɜ / → bird

/ ɵ / → foot

/ u / → boot

/ ə / → bird (slightly closer than / ɜ /)

/ œ / → oeuf (french)

/ ɛ / → bed

/ ə / → about

/ o / → go

/ ɔ / → law

/ y / → sucre (french)

/ i / → free

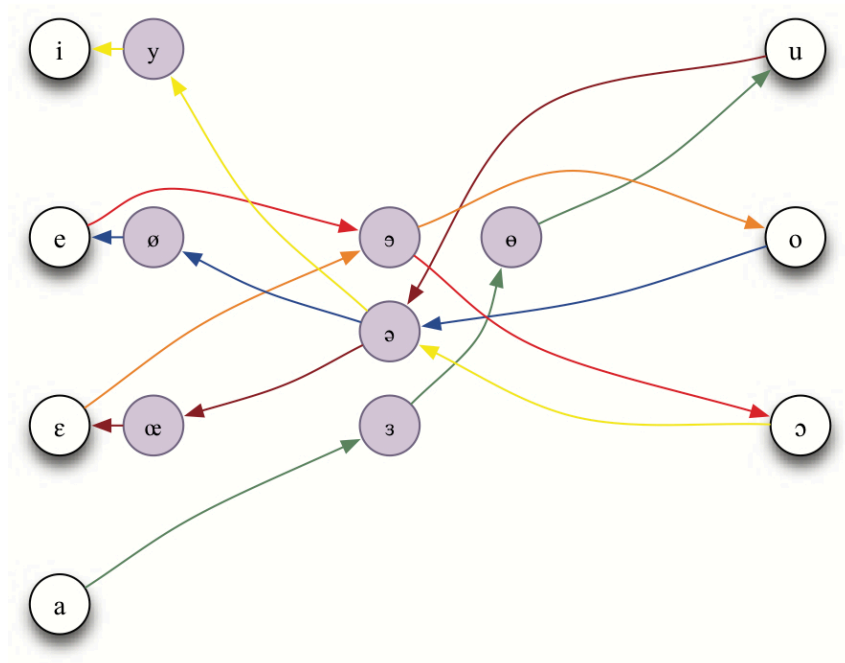


diagram 1. Vowels path in vocalic space

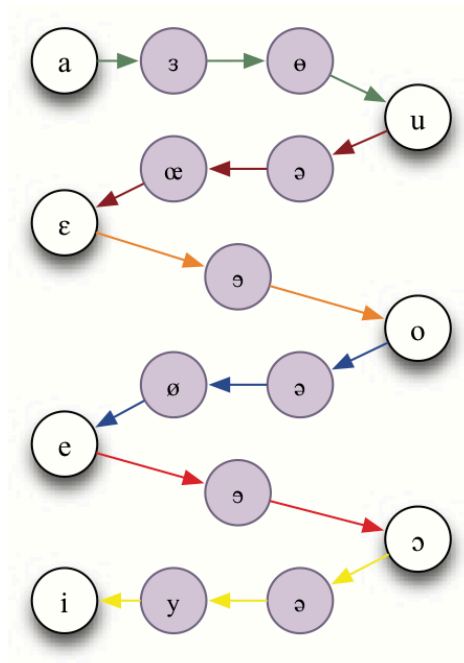


diagram 2. Vowels path

Consonants:

There is a phonetic path for consonants from softer and voiced ones towards harder and occlusive consonants. The correspondence with english words in the sequence in score is the following:

/ r / → better

/ h / → high

/ l / → left

/ ʎ / → figlio (italian)

/ v / → voice

/ ŋ / → singer

/ x / → loch

/ ð / → father

/ g / → go

/ dʒ / → edge

/ ʒ / → pleasure

/ n / → name

/ m / → man

/ ʁ / → ich (german)

/ θ / → thin

/ f / → feel

/ k / → kiss

/ b / → aback

/ p / → pack

/ tʃ / → bleach

/ ʃ / → shadow

THE INTERNATIONAL PHONETIC ALPHABET (2005)

CONSONANTS (PULMONIC)

| | LABIAL | | CORONAL | | | | DORSAL | | | RADICAL | | LARYNGEAL |
|---------------------|----------|--------------|---------|----------|-----------------|-----------|---------|-------|--------|------------|-------------|-----------|
| | Bilabial | Labio-dental | Dental | Alveolar | Palato-alveolar | Retroflex | Palatal | Velar | Uvular | Pharyngeal | Epi-glottal | Glottal |
| Nasal | m | ɱ | n | | | ɳ | ɲ | ŋ | ɴ | | | |
| Plosive | p b | ɸ β | t d | | | ʈ ɖ | c ɟ | k ɡ | q ɢ | | | |
| Fricative | ɸ β | f v | θ ð | s z | ʃ ʒ | ʂ ʐ | ç ʝ | x ɣ | χ ʁ | ħ ʕ | ħ ʕ | h ɦ |
| Approximant | | ʋ | ɹ | | | ɻ | j | ɰ | | | | |
| Trill | ʙ | | r | | | | | | ʀ | | ʀ | |
| Tap, Flap | | ⱱ | ɾ | | | ɽ | | | | | | |
| Lateral fricative | | | ɬ ɮ | | | ɮ | ɬ | ɮ | | | | |
| Lateral approximant | | | l | | | ɭ | ʎ | ʟ | | | | |
| Lateral flap | | | ɭ | | | ɭ | | | | | | |

Where symbols appear in pairs, the one to the right represents a modally voiced consonant, except for murmured *ɦ*. Shaded areas denote articulations judged to be impossible. Light grey letters are unofficial extensions of the IPA.

CONSONANTS (NON-PULMONIC)

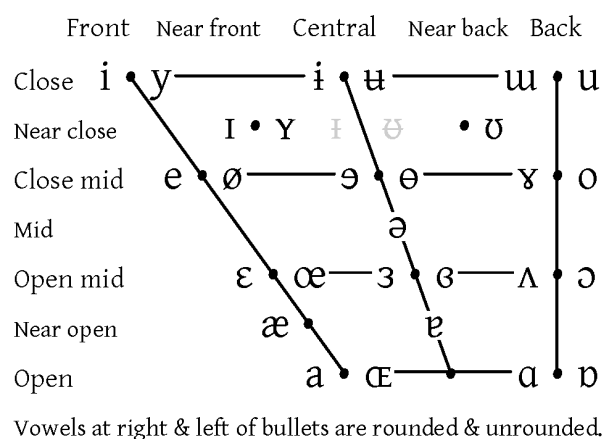
| Anterior click releases (require posterior stops) | Voiced implosives | Ejectives |
|---|--|--|
| <p>◌ ɓ Bilabial fricated</p> <p>◌ ɗ Laminar alveolar fricated ("dental")</p> <p>◌ ɗ̥ Apical (post)alveolar abrupt ("retroflex")</p> <p>◌ ɗ̥ Laminar postalveolar abrupt ("palatal")</p> <p>◌ ɗ̥ Lateral alveolar fricated ("lateral")</p> | <p>ɓ Bilabial</p> <p>ɗ Dental or alveolar</p> <p>ɗ̥ Palatal</p> <p>ɗ̥ Velar</p> <p>ɗ̥ Uvular</p> | <p>ʼ <i>Examples:</i></p> <p>ɓʼ Bilabial</p> <p>ɗʼ Dental or alveolar</p> <p>ɗ̥ʼ Velar</p> <p>ɗ̥ʼ Alveolar fricative</p> |

CONSONANTS (CO-ARTICULATED)

- ɱ Voiceless labialized velar approximant
- ɰ Voiced labialized velar approximant
- ɰ Voiced labialized palatal approximant
- ɕ Voiceless palatalized postalveolar (alveolo-palatal) fricative
- ʑ Voiced palatalized postalveolar (alveolo-palatal) fricative
- ɧ Simultaneous x and ʃ (disputed)

kp ts Affricates and double articulations may be joined by a tie bar

VOWELS



SUPRASEGMENTALS

- Primary stress** ' **Extra stress** '' **Level tones** **Contour-tone examples:**
- Secondary stress** ˌ **Long** eː **Half-long** eˑ **Extra-short** ɛ̥ **Top** ˥ **Rising** ˩˥
- Short** e̥ **Linking (no break)** ˩˥ **High** ˥ **Falling** ˥˩
- Syllable break** ˌ **Low** ˩ **High rising** ˩˥ **Low rising** ˩˩˥
- INTONATION** **Bottom** ˩ **High falling** ˥˩ **Tone terracing** ˩˩˩
- Minor (foot) break** ˌ **Upstep** ˩˩˩ **Low falling** ˩˩˩
- Major (intonation) break** ˌˌ **Peaking** ˩˩˩˩ **Dipping** ˩˩˩˩
- Global rise** ↗ **Global fall** ↘

DIACRITICS Diacritics may be placed above a symbol with a descender, as ɲ̥. Other IPA symbols may appear as diacritics to represent phonetic detail: ɾ̥ (fricative release), ɸ̥ (breathy voice), ʔ̥ (glottal onset), ʔ̥ (epenthetic schwa), ɔ̥ (diphthongization).

| SYLLABICITY & RELEASES | | PHONATION | | PRIMARY ARTICULATION | | SECONDARY ARTICULATION | | | |
|------------------------|--|-----------|----------------------------|----------------------|---|------------------------|-----------------------------|-------|-----------------------|
| ɲ̥ ɲ̥ | Syllabic | ɲ̥ ɲ̥ | Voiceless or Slack voice | ɲ̥ ɲ̥ | Dental | ɲ̥ ɲ̥ | Labialized | ɲ̥ ɲ̥ | More rounded |
| ɲ̥ ɲ̥ | Non-syllabic | ɲ̥ ɲ̥ | Modal voice or Stiff voice | ɲ̥ ɲ̥ | Apical | ɲ̥ ɲ̥ | Palatalized | ɲ̥ ɲ̥ | Less rounded |
| ɲ̥ ɲ̥ | (Pre)aspirated | ɲ̥ ɲ̥ | Breathy voice | ɲ̥ ɲ̥ | Laminar | ɲ̥ ɲ̥ | Velarized | ɲ̥ ɲ̥ | Nasalized |
| ɲ̥ ɲ̥ | Nasal release | ɲ̥ ɲ̥ | Creaky voice | ɲ̥ ɲ̥ | Advanced | ɲ̥ ɲ̥ | Pharyngealized | ɲ̥ ɲ̥ | Rhoticity |
| ɲ̥ ɲ̥ | Lateral release | ɲ̥ ɲ̥ | Strident | ɲ̥ ɲ̥ | Retracted | ɲ̥ ɲ̥ | Velarized or pharyngealized | ɲ̥ ɲ̥ | Advanced tongue root |
| ɲ̥ ɲ̥ | No audible release | ɲ̥ ɲ̥ | Linguolabial | ɲ̥ ɲ̥ | Centralized | ɲ̥ ɲ̥ | Mid-centralized | ɲ̥ ɲ̥ | Retracted tongue root |
| ɲ̥ ɲ̥ | Lowered (ɲ̥ is a bilabial approximant) | ɲ̥ ɲ̥ | | ɲ̥ ɲ̥ | Raised (ɲ̥ is a voiced alveolar non-sibilant fricative, ɲ̥ a fricative trill) | | | | |

Είμαι

Eimai * - /e:me/

6 voices

Daniel FÍGOLS - CUEVAS

2013

4/4 $\text{♩} = 50$ 3/8 4/4

a. Sleepy, enchanted

Soprano
ha a - ha. a - - - ra ha - a - ra - - - a - ha,

Alto
ha a - ha. a - - - ra ha - a - ra - - - a - ha,

Counter-Tenor
ha a - - - a - ha. a - ra ha - a - ra - - - a - ha,

Tenor
a - ra - a ha - ha - a a - - - a, a - a ra - a a - a a - ra a - a?

Baritone
a - ra - a ha - ha - a a - a, a - - - a ra - - - a a - a a - ra a?

Bass
a - ra - a ha - ha - a a - a, a - a ra - a a - a a - ra a - a?

5 3/8 4/4

S.
a - ra la - ra! ra - ra r3, l3 - l3 r3,

A.
a - ra la - ra! ra - ra r3, l3 - l3 r3,

CTen.
a - ra la - ra! ra - ra r3, l3 - l3 r3,

T.
ha a - a - ra - ra ha - - - ra - a, a ha - a - ra - a - ha, ha a - a - ra - ra ha -

Bar.
ha a - a - ra - ra ha - - - ra - a, a ha - a - ra - a - ha, ha a - a - ra - ra ha -

B.
ha a - a - ra - ra ha - - - ra - a, a ha - a - ra - a - ha, ha a - a - ra - ra ha -

* Greek word meaning "I am".

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5
8

4
4

3
4

[13]

S.
r3, l3 - ra ra. Λθ, Λθ - v3 Λ3, Λθ - vθ θ - θ vθ,

A.
r3, l3 - ra ra. Λθ, Λθ - v3 Λ3, Λθ - vθ θ - θ vθ,

CTen.
r3, l3 - ra ra. Λθ, Λ3 - v3, Λ3, v3 - θ 3 3 - θ

T.
ra la - la ra. Λθ, Λ3 - v3, Λ3, Λθ - vθ θ - θ vθ,

Bar.
ra la - la ra. Λθ, vθ - 3 l3 - vθ v3 le - vθ, le - vθ, Λ3, θ - vθ θ - 3 3 - 3,

B.
ra la - la ra. Λθ, vθ - 3 l3 - vθ v3 le - vθ, le - vθ, Λ3, θ - vθ θ - 3 3 - 3,

3/4 $\xrightarrow{\text{accel.}}$ 4/4 $\text{♩} = 60$ 3/8 4/4

b. Awakening

16 *p > pp* *mp* *pp < p* *p* *pp < p* *p > pp* *p > pp* *pp* *p > pp*

S. $\lambda_3 - l_3$ $\theta - 3 - v\theta.$ $r\theta - r_3$ $\eta\theta$ $3 - r_3$ $ha - r\theta$ $ha - r\theta$ $ra - a,$

A. $\lambda_3 - l_3$ $\theta - 3 - v\theta.$ $r\theta - r_3$ $\eta\theta$ $3 - r_3$ $ha - r\theta$ $ha - r\theta$ $ra - a,$

CTen. $\lambda_3 - l_3$ $\theta - 3 - v\theta.$ h_3 $\eta\theta - r_3$ $h\eta\eta - a$ $\eta\theta$ $\eta a - \eta a,$ θ $\theta - \eta a,$

T. $\lambda_3 - l_3$ $\theta - 3 - v\theta.$ h_3 $\eta\theta - r_3$ $h\eta\eta - a$ $\eta\theta$ $\eta a - \eta a,$ θ $\theta - \eta a,$

Bar. $\lambda_3 - l_3$ $\theta - 3 - v\theta.$ θ $\theta\eta - a$ $\theta - ra$ $ra - ha - ra,$

B. $\lambda_3 - l_3$ $\theta - 3 - v\theta.$ θ $\theta\eta - a$ $\theta - ra$ $ra - ha - ra,$

4/4 2/4

19 *p > pp* *p > pp* *p > pp* *mp < mf* *p* *pp* *mp > pp* *mp* *pp < p* *mp*

S. $ha - 3$ $h\eta\eta - 3 - ra$ $h\eta\eta - 3$ $\eta\theta - ha,$ θ $\eta\theta - ha$ $a - h\theta$ $\theta - 3$ $\eta_3\eta - a$ a $h_3\eta - a,$ $r\theta - h_3$ h_3

A. $ha - 3$ $h\eta\eta - 3 - ra$ $h\eta\eta - 3$ $\eta\theta - ha,$ θ $v\theta,$ θ $\eta\theta - ha$ $a - h\theta$ $\theta - 3$ $\eta_3\eta - a$ a $h_3\eta - a,$ $r\theta -$

CTen. $ha - r_3 - ha$ $\eta a - ha,$ $\eta a\eta - a.$ θ $\eta\theta - ha$ $a - h\theta$ $\theta - 3$ $\eta_3\eta - a$ a $h_3\eta - a,$ $r\theta -$

T. $ha - r_3 - ha$ $\eta a - ha,$ $\eta a\eta - a.$ θ $\eta\theta - ha$ $a - h\theta$ $\theta - 3$ $\eta_3\eta - a$ a $h_3\eta - a,$ $r\theta -$

Bar. 3 $\eta_3\eta - a$ $\eta_3 - ra - \theta$ $3 - ra,$ $\eta a\eta - a.$ θ $\eta\theta - ha$ $a - h\theta$ $\theta - 3$ $\eta_3\eta - a$ a $h_3\eta - a,$ $r\theta -$

B. 3 $\eta_3\eta - a$ $\eta_3 - ra - \theta$ $3 - ra,$ $\eta a\eta - a.$ θ $\eta\theta - ha$ $a - h\theta$ $\theta - 3$ $\eta_3\eta - a$ a $h_3\eta - a,$ $r\theta -$

2/4 4/4 4/4 $\text{♩} = 70$ 5/4 4/4

C. Sweet *mp*

S. *<mp* *mp* *mp* *mf* *p* *<mf* *<mf*
 ra - h3 ɲaŋ - a. lə - ru u - və u - u u - ru - u, xu hu - hu hu-u u-xu u-xu-xu,

A. *<mp* *mp* *mp* *mf* *p* *<mf* *<mf*
 h3 h3 ra - h3 lə - ru u - və u - u u - ru - u, xu hu - hu hu-u u-xu u-xu-xu,

CTen. *<mp* *mp* *mp* *mf* *<mf*
 h3 h3 ra - h3 ə - və - ru ru - və - rə lə - və vu - vu ə, hu hu - hu u - xu.

T. *<mp* *mp* *p* *mf* *<mf*
 8 h3 h3 ra - h3 ə - və - ru ru - və - rə lə - və vu - vu ə, hu hu - hu u - xu.

Bar. *<mp* *mp* *p* *mp*
 h3 h3 ra - h3 ə - vu - rə - u u - və rə rə - və, hu u-xu xu-hu hu-xu-hu u xu-hu,

B. *<mp* *mp* *p* *mp*
 h3 h3 ra - h3 ə - vu - rə - u u - və rə rə - və, hu u-xu xu-hu hu-xu-hu u xu-hu,

4/4 3/4 4/4 5/8

S. *p* *pp* *p* *pp* *mf* *mf* *sfz*
 25 ðu - - - ə ðu - - - ðə, ðæ - xæ dʒæ ʒæ - xæ ə - ʒæ.

A. *p* *pp* *p* *pp* *mf* *mf* *sfz*
 ðu - - - ə ðu - - - ðə, ðæ - xæ dʒæ ʒæ - xæ ə - ʒæ.

CTen. *pp* *p* *pp* *p* *mp* *mf* *sfz* *sfz* *mp* *mf*
 ðu - glə ðə - glə glu - ə ðu - ə gu ðu - ə glə ðu, ðə - ðə ə ʒæ - ðə xæ xə - ðə æ dʒə - ðæ.

T. *pp* *p* *pp* *p* *mp* *mf* *sfz* *sfz* *mp* *mf*
 8 ðu - glə ðə - glə glu - ə ə ðu - ə gu ðu - ə glə ðu, ðə - ðə ə ʒæ - ðə xæ xə - ðə æ dʒə - ðæ.

Bar. *mf* *mp* *sfz* *mp* *sfz* *mp* *sfz*
 glu - glə gu - gə glə u - - - gə. ɲaŋ - a. ʒædʒæ ʒə-ʒə dʒæ - ə - ʒə xæ ðə - ʒə xə-xæ æ-ʒə ðə -

B. *mf* *mp* *sfz* *mp* *sfz* *mp* *sfz*
 glu - glə gu - gə glə u - - - gə. ʒæ-dʒæ ʒə-ʒə dʒæ-ə-ʒə xæ ðə-ʒə xə - xæ æ-ʒə ðə-ðə-xæ.

5/8 $\text{♩} = 52$ Choral

29 *f* *sfz* *ppp* *mp* *f* *p* *sfzppp* *mf* *fpp* *f*

S. *f* *sfz* *ppp* *mp* *f* *p* *sfzppp* *mf* *fpp* *f*

A. *f* *sfz* *ppp* *mp* *f* *p* *sfzppp* *mf* *fpp* *f*

CTen. *f* *sfz* *ppp* *mp* *f* *p* *sfzppp* *mf* *fpp* *f*

T. *f* *sfz* *ppp* *mp* *f* *p* *sfzppp* *mf* *fpp* *f*

Bar. *f* *sfz* *ppp* *mp* *f* *p* *sfzppp* *mf* *fpp* *f*

B. *f* *sfz* *ppp* *mp* *f* *p* *sfzppp* *mf* *fpp* *f*

ε - ηε ε, ε - ηε ηε - ε; xε ε - ε γε ε - ε,

5/8 4/4 $\text{♩} = \text{♩}$ 3/4

35 *sfz* *sfz* *f pppp subito* *<p> pppp* *<p> pppp* *~ 5-6"*

S. *sfz* *sfz* *f pppp subito* *<p> pppp* *<p> pppp* *~ 5-6"*

A. *sfz* *sfz* *f pppp subito* *<p> pppp* *<p> pppp* *~ 5-6"*

CTen. *sfz* *sfz* *f pppp subito* *<p> pppp* *<p> pppp* *~ 5-6"*

T. *sfz* *sfz* *f pppp subito* *<p> pppp* *<p> pppp* *~ 5-6"*

Bar. *sfz* *sfz* *f pppp subito* *<p> pppp* *<p> pppp* *~ 5-6"*

B. *sfz* *sfz* *f pppp subito* *<p> pppp* *<p> pppp* *~ 5-6"*

xε - ε xε ε - - - ε. xε - ε xε ε - - - ε. xε - ε xε ε - - - ε. xε - ε xε ε - - - ε. xε - ε xε ε - - - ε. xε - ε xε ε - - - ε.

3
4 ♩ = 60

e. Babbling

40 *ppppp* *pp* *p* *pp* *pp* *p*

S. *ε - ε* *gle - ne* *ε* *γε - ne* *gre - ε.* *ε - ε* *gle - ne* *ε*

A. *ε - ε* *gle - ne* *ε* *γε - ne* *gre - ε.* *ε - ε* *gle - ne* *ε*

CTen. *ε - gle* *gle - ne* *gre* *ε - - - - ne,* *gle - ge* *ge*

T. *ε - gle* *gle - ne* *gre* *ε - - - - ne,* *gle - ge* *ge*

Bar. *gle - ge* *ε - ge* *gle* *ε - ge,* *gle* *gle -*

B. *gle - ge* *ε - ge* *gle* *ε - ge,* *gle* *gle -*

4
4 **3**
4

43 *mp* *mp* *mf*

S. *γε - ne* *gre - ε.* *γε - ne* *gre - ε.* *gre - ε.*

A. *γε - ne* *gre - ε.* *γε - ne* *gre - ε.* *gre - ε.*

CTen. *gre - ge* *ne - ε.* *gre - ge* *ne - ε.* *ne - ε.*

T. *gre - ge* *ne - ε.* *gre - ge* *ne - ε.* *ne - ε.*

Bar. *ne* *ε* *ε - ne.* *de* *dre - ge* *ε* *de - - - - ε,* *me - - - - -*

B. *ne* *ε* *ε - ne.* *ne* *ε* *ε - ne.* *ε - ne.*

4
4

3
4

4
4

= 60

47

f. Enigmatic

S. *mf* *p* *p* *p*
χε νε ε go

A. *mf* *p* *p* *pp*
χε νε ε no -

CTen. *mf* *p* *p* *pp* *p*
χε νε ε o

T. *mf* *p* *p* *pp* *p*
χε νε ε glo - fə, -

Bar. *mf* *mp* *mf* *pp* *p*
χə nə - - - - - χə gro

B. *mp* *p* *p*
χε νε ε

==

51

S. *(p)* *pp* *pp* *p* *pp* *pp*
o - - - - glo, glo

A. *(p)* *pp* *pp* *p* *pp* *pp* *p*
glo 3 go fo

CTen. *(p)* *pp* *pp* *p* *pp* *pp*
- θo - - - θo. θə -

T. *(p)* *pp* *pp* *p* *pp* *pp*
8 glo - glo o

Bar. *(p)* *pp* *pp* *p* *pp* *pp*
- θo - - - - o go - - -

B. *(p)* *pp* *pp* *p* *pp* *pp* *p*
gro - - - - - o glo

55 *p* *pp* *pp* *p* *pp*

S. glo - - - o

A. *pp* *pp* *p* *pp*
gro θo - o

CTen. *p* *pp* *pp* *p* *pp*
o mo - - - - - mo.

T. *p* *pp* *pp* *p* *pp*
8 (o) do - - - - do

Bar. *p* *pp* *pp* *p*
mo θo - - - - -

B. *pp* *pp* *p* *pp*
no - - - - - mo,

=

3
4

58 *mp* *f*

S. mo mo

A. *mp* *f*
mo mo

CTen. *mp* *f*
mo mo

T. *mp* *f*
8 mo mo

Bar. *pp* *mp* *f*
o, mo mo

B. *mp* *f*
mo mo

acc. $\text{♩} = 80$

69

S. *pp* *sfz* *p*
 ɔ̌ - - - - - gliss. ɔ̌. rə

A. *p* *mp* *pp* *p*
 ɔ̌ - tʃə tʃə ʃə - - - tʃə, gliss. gliss. dʒə

CTen. *p* *pp* *p*
 ɔ̌ - - - tʃə ʃə - tʃə, dʒə - ry ry

T. *p* *mf*
 8 tʃy. y

Bar. *mp* *mf* *sfz* spoken
 ɔ̌ - tʃə tʃə ʃə-tʃə, tso - tʃə tsey - ɔ̌ tʃy.

B. *mp* spoken *p*
 dʒə-ry dʒəry dʒə

3/8 **4/4** **3/8+3/8**

73 *p* *pp* *p* *mf* spoken *mp*

S. *p* *pp* *p* *mf* spoken *mp*

A. *p* *pp* *p* *mf* spoken

CTen. *p* *pp* *p* *mp* spoken

T. *p* *mp* *p* *mp* *mf* spoken *mf*

Bar. *p* *mp* *p* *mp* *mf* *mp*

B. *p* *mp* *p* *mp* *mf*

tsy - o tŷy. tŷy. dʒə - ry dʒə

32

88

h.

♩ = 110

Exasperated

4

4

78

f *mf* *sfz* *sffz* *<sfz* *sfz* *sffz* *sfz* *sfz* *sfz* *sfz* *sfz*

S. *χῶ - χῶ y rῶ - χῶ! fῶ! y-fῶ, fῶ! gry! krῶ-i, krῶ y-gri!*

A. *ῶῶ - xῶ, χῶ - χῶ y fῶ! y-fῶ, fῶ! gry! krῶi, krῶ y-gri!*

CTen. *rῶ - χῶ! χῶ - χῶ y fῶ! fῶ-fῶ tsῶ, fῶ! gry! fῶ-fῶ gry! kry y-gri! i-kri bry, i-kri bry, i-kri bry, i -*

T. *rῶ - χῶ! χῶ - χῶ y fῶ! fῶ-fῶ tsῶ, fῶ! gry! fῶ-fῶ gry! kry y-gri! kri! kri! kri!*

Bar. *rῶ - χῶ! χῶ - χῶ y fῶ! tsῶ, fῶ! gry! krῶgri, kry y-gri!*

B. *rῶ - χῶ! χῶ - χῶ y fῶ! tsῶ, fῶ! gry! krῶgri, kry y-gri!*

4

4

accel.

♩ = 130

1

8

82

sfz *sfz* *sfz* *p!!* *sffz* *mf* *~ 10"* *subito silenzio*

S. *kry kri! kri! kry kri! kry kri! kri! kri! i χ*

A. *kri! kri! kri! kri! kri! ICH!!(iχ) ~ 10"*

CTen. *kri bry, i-kri bry, i-kri bry, i-kri bry, i-kri bry, kri-pri, kri-pri, kri-pri, kri-pri, mf kri-pri, kri-pri, ICH!!(iχ) ~ 10"*

T. *kri! kri! kri! kri! kri-χi! χi-kri, kri!kri! ICH!!(iχ) ~ 10"*

Bar. *i - pri i i - pri i kry kry kry kry kry ICH!!(iχ) ~ 10"*

B. *χi - kri, i ~ 10"*

creeky voice *subito silenzio*

ISON

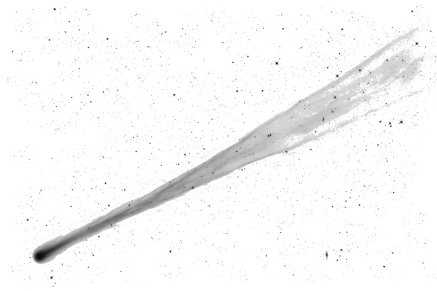
for flute, violin, viola, cello and piano

(2013)

Daniel FÍGOLS-CUEVAS



contact@danielfigols.com



ISON

(2013)

Instrumentation:

Flute (Alto Flute, Piccolo)

Violin

Viola

Cello

Piano

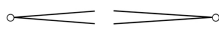

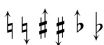
Daniel FÍGOLS - CUEVAS

contact@danielfigols.com











ISON

Symbols and technical instructions

General indications:



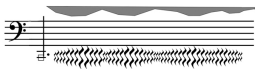
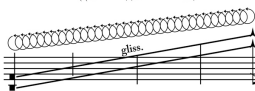





- Dynamics:  *crescendo dal niente*, from silence and *decrescendo al niente*, to silence.
 Exponential *crescendo*.
- Microtonality: $\flat = -3/4$ $\flat = -1/4$ $\sharp = +1/4$ $\sharp = +3/4$ $\flat = -1/2$ $\sharp = 0$ $\sharp = +1/2$  Slightly higher or lower.

Flute:



-  Eolian sound, airy sound.  Cover mouthpiece with lips, hollow airy sound.
- trill.  Timbre trill using different fingerings.
-  Transition from closed mouthpiece to normal lips position.
-  Harmonic.  Double harmonic.  J.W. Jet whistle.
-  *Pizzicato*.  T.R. Tongue ram.  W.T. Whistle tone.

Multiphonic fingerings from LEVINE, The Techniques of Flute Playing I/II, Kassel, Bärenreiter, 2002.

Strings:

- Right Hand:
 - Bow position:
 - MST, *molto sul tasto*
 - ST, *sul tasto*
 - N, *normale*
 - SP, *sul ponticello*
 - MSP, *molto sul ponticello*
 - 
 -  Bow pressure on the strings.
 -  Roar sound produced by very slow and high pressure bowing.
 -  Circular bow movement.
- Left Hand:
 -  Natural harmonics notation: written pitches indicate left hand fingerings on the specific string only.
 -  The resultant actual pitches are on the upper staff.
 -  Highest notes possible.
 -  Damped strings with left hand.
 -  Pitch *vibrato*, follow amplitude and frequency indicated.

Piano:

-  Use right hand palm on the denoted strings. Press shortly and quickly release after keystroke in order to produce an harmonic. In case the resultant pitch is indicated use one finger.
-  *Pizzicato*, use finger tips to pluck the strings.

C/2012 S1

Daniel FÍGOLS - CUEVAS
2013

3/8 4/4

Fl.

VI.

Vla.

Vc.

Pno.

16 16 16 16 16

mp > pp p mp p mp p

gliss. gliss. gliss.

3 3 3

II. III. IV. Ord. II. Ord.

pizz.

p

3/4 4/4

B

3/8 3/4

Fl. [20] Nr. 5 *mf*

VI. [20] *pp* *p* *mp* *pp* *p* *pp*

Vla. [20] *p* *pp* *mp* *pp* *p* *pp*

Vc. [20] *p* *pp* *p* *mp* *p* *pp*

Pno. [20] *mp*

gliss. *pp* *< p > pp* *mp* *p* *mf* *p*

sempr. III. *II.* *sempr.* *MSP* *sempr.*

pizz. *p*

mp

4/4 3/4 4/4

Fl. [25] Nr. 14 *pp* *mp* *pp* *p* *mp*

VI. [25] *p* *mp* *pp* *mp* *p*

Vla. [25] *p* *mf* *p* *mp* *p*

Vc. [25] *p* *pp* *p* *pp* *mp* *mf*

Pno. [25] *mp* *p*

gliss. *gliss.* *gliss.* *gliss.*

3 *3* *3* *3*

pizz. *Ord.*

mp *p*



34 Nr. 12

Fl.

34 Nr. 200

Vl.

Vla.

Vc.

Pno.

very short

Central

D Slightly faster
♩ = 68-74

39 3 4 4 3 4

Fl. *pp* *p* *pp* *pp* *p* *pp*

VI. *pp* *p* *pp* *p* *pp* *pp*

Vla. *p* *pp* *p* *pp* *p* *pp* *p* *pp*

Vc. *p* *pp* *p* *pp* *p* *pp* *p* *pp*

Pno. *pp* *p* *pp* *p* *pp*

[illegible]

Fl. 49 *pp* *p* *pp* *mp* *p* *flz.* *gliss.* *gliss.* *mf* *p* *mp*

VI. 49 *p* *mp* *pp* (ST) I. 3 *mp* *pp* *p* *mp*

Vla. 49 *pp* *mf* *p* *pp* (ST) *mp* *pp* *p* *mp*

Vc. 49 *pp* *p* *pp* *sfz* *mp* *pp* *p* *mp*

Pno. 49 *ppp* *pp* *ppp* (Ord.) *mp* *ppp* (Ord.) *p*

Fl. 53 *sfz* *mp* *pp* *ppp* *mp* *p* *sfz* *pp*

VI. 53 (ST) *sfz* *ppp* *p* *mp* *p* *sfz* *mf*

Vla. 53 *sfz* *pp* *p* *mf* *p* *mp* *p* *sfz* *mf*

Vc. 53 *sfz* *mp* *p* *p* *mp* *p* *sfz* *mf* *pp*

Pno. 53 *mf* *mp* *mp* *p* *f* *mf*

Nr. 63



[illegible]

Fl. 71 *p* *f* *p* *f* *f* *pp*

Vl. 71 *pp* *mf* *pp* *mf* *mf*

Vla. 71 *p* *pp* *mp* *p* *mf*

Vc. 71 *p* *pp* *mf* *mf*

Pno. 71 *p* *f* *p* *f*

3

Fl. 75 *sfz* *mp* *sfz* *pp* *p* *sfz* *mp* *mp* *sfz* *mp*

Vl. 75 *p* *f* *ppp immobile*

Vla. 75 *p* *f* *ppp immobile*

Vc. 75 *p* *f* *ppp immobile*

Pno. 75 *f* *p* *mf* *pp* *f* *p* *mf*

4 4 5 8 4 4

(Rea) * Rea

Fl. 79 *pp* *p* *pp* *trill.* *flz.*

VI. 79 *ppp* *ppp* *pp* *ppp*

Vla. 79 *ppp* *pp* *ppp* *ppp* *pp*

Vc. 79 *ppp* *ppp* *pp* *ppp*

Pno. 79 *pp* *pp* *mp* *pp*

(Red.)

Fl. 83 *Flute* *J.W.* *Nr. 1* *Nr. 5* *T.R.* *pp* *p*

VI. 83 *ppp* *mp* *p* *mp* *p* *mp* *sfz* *pp*

Vla. 83 *ppp* *mp* *pp* *p* *pp* *pp* *p* *ppp* *pp*

Vc. 83 *ppp* *mp* *f* *p* *pp* *pp* *mp* *sfz* *pp*

Pno. 83 *p* *mp* *f* *mf* *p* *f*

(Red.)

Fl. 87 3 4 4 3 8 4 T.R. harm. *pp* *p* *f* *sfz* *sfz* *mp* *mf*

Vi. 87 3 3 *pp* *p* *sfzpp* *p* *mf* *sfz* *sfz* *ppp* (MSP)

Vla. 87 3 3 *pp* *mp* *pp* *mf* *sfz* *sfz* *ppp* (MSP)

Vc. 87 3 3 *pp* *sfzpp* *mf* *sfz* *sfz* *mp* pizz.

Pno. 87 *mp* (Reo) *mf* (Ord.) *f* *mp* pizz.

Fl. 91 3 4 5 16 4 T.R. T.R. T.R. *mf* *p* *mp* *sfz* *sfz* *sfz* *pp*

Vi. 91 gliss. *ppp* *sfz* *p* *f* *sfz* *sfz* *sfz* *sfzp* *pp*

Vla. 91 3 3 gliss. gliss. *pp* *mf* *p* *sfz* *sfz* *sfz* *sfzp* *pp*

Vc. 91 arco 3 3 3 gliss. gliss. gliss. *pp* *p* *pp* *p* *mp* *pp* *sfzp* *mf* *sfz* *sfz* *sfzp* *pp*

Pno. 91 *f* *p* *pizz.* *f* *mf* (Reo)

68

4/4 **G**

Fl. 103 *Singing* *pp* *p* *pp* *p* *pp* *mf* *ppp* *p*

gliss. *pp* *mp > pp* *p* *pp* *mp > pp* *p* *pp*

Vl. 103 *pp* *mp > pp* *p* *pp* *mp > pp* *p* *pp*

Vla. 103 (III.) *pp* *p* *pp* *mp > pp* *III. IV. mp > pp* *p* *pp*

Vc. 103 *ppp* *mp > pp* *mp > pp* *mp > pp* *p*

Pno. 103

Nr. 157

3/4 4/4

Fl. 108 *mp* *pp* *mp* *mf*

Vl. 108 *pp* *ppp*

Vla. 108 *pp* *ppp*

Vc. 108 *pp* *ppp*

Pno. 108

MSP

ST

Fl. 112 *p mp p* *colian* *p*

Vi. 112 *p pp p > pp* *port.* *MSP* *ppp*

Vla. 112 *p pp p > pp* *port.* *MSP* *ppp*

Vc. 112 *p pp p > pp* *port.* *ST* *very slow bow!* *Ord.* *gliss.* *p*

Pno. 112 *pizz.* *mp* *mf*

3/8 4/4 H ♩ = 56

=

Fl. 116 *T.R.* *T.R. T.R.* *T.R.* *sfz*

Vi. 116 *(ppp)* *gliss.* *mp* *ppp*

Vla. 116 *(ppp)* *gliss.* *mp* *ppp*

Vc. 116 *< mf* *sfz* *SP* *ST* *Ord.* *gliss.* *p* *mf* *p*

Pno. 116 *Muted!*

3/4 4/4

3/8 4/4 3/4 4/4 3/8 5/16

Fl. 120 T.R. T.R. *sfz* *sfz* *trill.* *gliss.* *gliss.* *gliss.* *mp* *sfz*

Vl. 120 (MSP) *ppp* *gliss.* *p* *pp* *p* *mp*

Vla. 120 (MSP) *sfzppp* *pp* *p*

Vc. 120 (SP) *sfz* *sfz* *ppp* *pp* *p*

Pno. 120 Muted *sfz* *mp* *f* *pizz.* *p*

Sea

5/16 2/4 5/8 4/4 ~ 7"

Fl. 125 T.R. T.R. (Nr. 191) (Nr. 227) *pp* *p* *pp* *ppp*

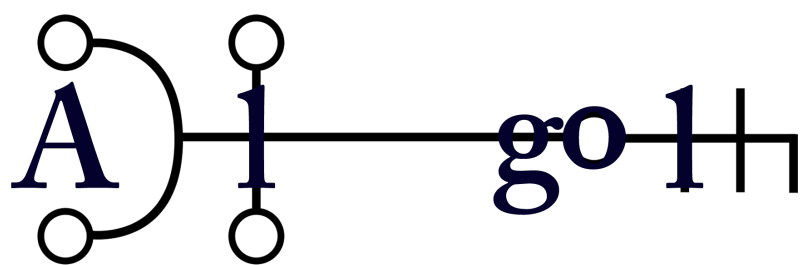
Vl. 125 *pizz.* *mp* (MSP arco) *p* *pp* *gliss.* *mp*

Vla. 125 *pizz.* *mp* (MSP arco) *p* *pp* *gliss.* *mp*

Vc. 125 *pizz.* *mp* (ST arco) *pp* *ppp* *pp* *ppp*

Pno. 125 Muted *mf* *pizz.* *mp*

Sea



(Algol)

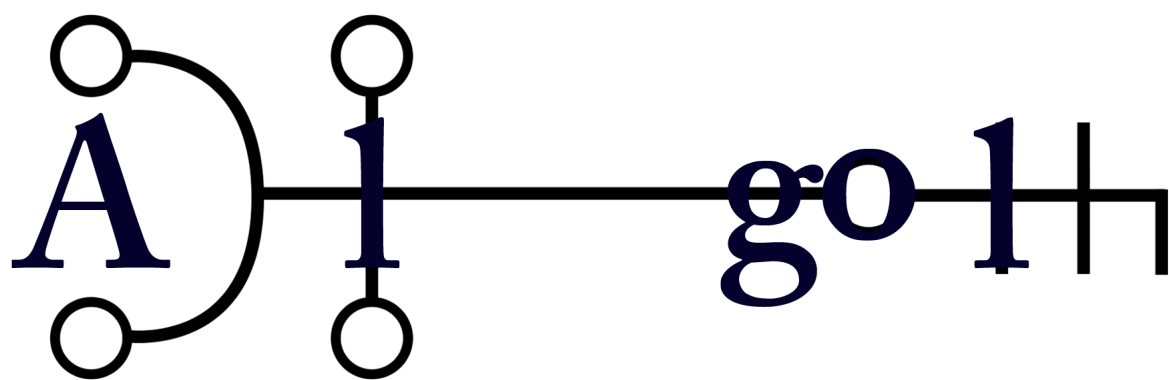
for 2 Tubas and Euphonium

(2013)

Daniel FÍGOLS-CUEVAS



contact@danielfigols.com



Algo

for 2 Tubas and Euphonium

Daniel FÍGOLS - CUEVAS
2013

Score in C
Accidentals apply to the entire bar.

à Maxime Morel et Raphaël Martin

Algol

for 2 Tubas and Euphonium

Daniel FÍGOLS - CUEVAS
2013

4/4 $\text{♩} = 80 \quad \text{♩} = 40$

3/4 3/8 4/4

Euphonium

Tuba 1

Tuba 2

5

Euph.

Tuba 1

Tuba 2

10

Euph.

Tuba 1

Tuba 2

28

Euph.

gliss.

gliss.

pp mp pp mf ppp

Tuba 1

ppp pp mp pp mf ppp

gliss.

pp p

Tuba 2

mp pp mf ppp

B

3/8 3/4 3/16 3/4 4/4

Euph. 33 flttz. ord. gliss. flttz. gliss. flttz.

Tuba 1 flttz. ord. gliss.

Tuba 2 flttz. ord. gliss.

p sfz pp mp mf ppp

p sfz pp sfz mp mf ppp

2/4 3/4 4/4 3/4 4/4

Euph. 38 ord. gliss. gliss.

Tuba 1 (ppp) mf ppp p ppp

Tuba 2 ord. gliss. p ppp

(ppp) mf ppp p ppp

(ppp) mf ppp p ppp

3/8 3/4 C 3/8 4/4 3/16

Euph. 43 accel. $\text{♩} = 90 \text{ } \text{♩} = 45$

Tuba 1 (ppp) < mp > pp mf ppp f ppp mp ppp sfz

Tuba 2 (ppp) < mp > pp mf ppp f ppp mp ppp sfz

(ppp) < mp > pp mf ppp f ppp mp ppp sfz

3/8 4/4 2/4 3/8 5/8 accel.

Euph. 49

Tuba 1 sfz pp sfz pp sfz pp sfz pp

Tuba 2 sfz pp < sfz > pp p pp sfz pp sfz pp sfz pp

sfz > pp < sfz > pp p pp sfz pp sfz pp sfz pp

3/8 *accel.* 4/4 ♩ = 100 ♩ = 50

54

Euph.

Tuba 1

Tuba 2

sfz *pp* *sfz* *sfz* *pp* *sfz* *pp* *sfz* *pp* *sfz* *pp* *sfz* *pp*

sfz *p* *sfz* *pp* *sfz* *pp* *sfz* *p* *sfz* *pp* *sfz*

sfz *pp* *sfz* *sfz* *pp* *sfz* *pp* *sfz* *pp* *sfz* *pp* *sfz*

3/8 *accel.* 3/4 ♩ = 110 ♩ = 55

58

Euph.

Tuba 1

Tuba 2

fffz *ppp* *p* *sfz* *pp*

fffz *ppp* *p* *ppp*

fffz *ppp* *p* *ppp*

flttz. *ord.* *flttz.* *ord.* *flttz.* *ord.*

2/4 **D** ♩ = ♩ ♩ = 60

61

Euph.

Tuba 1

Tuba 2

sfz *sfz* *sfz* *sfz* *mp*

sfz *mp* *mp* *mp > p* *mf* *mf* *mf > p* *mp* *sfz*

mp *p* *mp > p* *sfz* *mp > p* *mp* *p* *mp* *mp > p* *sfz* *mf*

66

Euph.

Tuba 1

Tuba 2

sfz *sfz* *mp* *sfz*

mp *mp* *mf > p* *mp* *sfz* *sfz* *mf > p* *mp* *mp* *mp > p* *mf*

p *p* *mf > p* *p* *mp* *sfz* *sfz* *mp* *p*

71

Euph.

Tuba 1

Tuba 2

mf *mp* *mf* *sfz* *mf* *mp* *mf* *f* *p* *sfz* *mp* *mf* *p* *mp*

sfz *sfz* *sfz* *sfz* *sfz* *sfz* *sfz* *sfz* *sfz* *sfz* *sfz* *sfz* *sfz* *sfz*

p *mp* *mf* *p* *mp* *f* *p* *mp* *mp* *sfz* *mp* *mp*

mf *mp* *mf* *sfz* *mf* *mp* *mf* *f* *p* *sfz* *mp* *mf* *p* *mp*

76

Euph.

Tuba 1

Tuba 2

mf *mp* *mp* *sfz* *mp* *p* *mf* *p* *sfz* *mp* *sfz* *mp* *sfz*

sfz *sfz* *sfz* *sfz* *sfz* *sfz* *sfz* *sfz* *sfz* *sfz* *sfz* *sfz* *sfz* *sfz*

p *pp* *mp* *pp* *mp* *pp* *mp* *pp* *mp* *pp* *mp* *pp* *mp* *pp*

mf *sfz* *p* *sfz* *p* *mf* *mp* *pp* *sfz* *mp* *pp* *mp* *mf* *mf*

81

Euph.

Tuba 1

Tuba 2

sfz *sfz* *p* *mf* *sfz* *p* *mf* *sfz* *sfz*

p *mf* *mf* *sfz* *sfz* *mp* *mp* *sfz* *mp* *p* *mf* *mf* *mp*

f *p* *mp* *f* *mp* *mf* *p* *mf* *mp* *mp* *p* *mp* *mp*

86

Euph.

Tuba 1

Tuba 2

sfz *f* *p* *f* *mf* *sfz* *p* *sfz* *sfz* *sfz* *p* *f* *mp*

mp *mp* *sfz* *sfz* *sfz* *mp* *mp* *p* *mf* *sfz* *mp*

mp *f* *p* *pp* *mp* *pp* *mf* *sfz* *mp* *sfz* *mp* *mf* *f* *p* *mp*

91

Euph.

Tuba 1

Tuba 2

p

sfz *p* *pp*

sfz *p* *pp* *sfz* *p* *sfz* *pp*

p *p* *mp*

sfz

mp *mf*

mp *p*

mp *mf* *mf*

sfz *mp* *sfz* *p* *p*

p *mp* *f* *mp*

sfz *sfz* *mp*

96

Euph.

Tuba 1

Tuba 2

sfz

sfz *mp* *sfz* *p* *f* *pp*

sfz *sfz* *p* *sfz* *p* *sfz* *p*

p *mp* *p* *mp* *sfz* *f* *p* *sfz*

sfz *mf* *sfz* *mp* *sfz*

pp *sfz* *mp* *mf* *f* *p* *mp* *pp* *sfz* *mf* *f* *p* *mp*

E

101

Euph.

Tuba 1

Tuba 2

(p) *sfz* *p*

sfz *mp* *p* *mp* *sfz* *sfz* *p* *sfz* *mf* *pp*

pp *p* *mp* *p* *mp* *pp* *sfz* *sfz* *mp* *mf* *p* *pp*

sfz *p* *mp* *sfz* *sfz* *sfz* *mp* *p* *sfz*

106

Euph.

Tuba 1

Tuba 2

sfz

sfz *mp* *mf* *pp* *sfz* *mp* *mf* *pp*

mp *sfz* *sfz* *p* *mp* *mf* *pp* *sfz* *mp* *mf* *pp* *sfz*

p *sfz* *p* *mf* *p* *mp* *sfz* *mf* *p* *sfz* *p* *mf* *pp*

111

Euph.

Tuba 1

Tuba 2

sfz *mp* *sfz* *p* *sfz* *mp* *sfz* *sfz* *pp* *f* *pp*

p *mf* *p* *sfz* *p* *sfz* *mf* *p* *mf* *mp* *sfz* *pp* *f* *p*

mf *p* *mp* *sfz* *p* *f* *p* *sfz* *mp* *sfz* *pp*

3
4 F ♩ = 70

116

Euph.

Tuba 1

Tuba 2

sfz *f* *pp* *sfz* *sffz* *ppp* *sempre*

sfz *sfz* *pp* *sfz* *sffz* *ppp* *sempre*

f *sfz* *sfz* *p* *sfz* *sffz* *ppp* *foreground* *mp*

4
4

3
4

120

Euph.

Tuba 1

Tuba 2

(ppp) *(ppp)*

pp *p* *pp*

mf *p* *mp* *mf* *p*

4
4

3
4

125

Euph.

Tuba 1

Tuba 2

(ppp)

mp *mf* *mp* *mf* *pp*

ppp *sempre*

4 4 3 4

131

Euph.

(*ppp*)

Tuba 1

ppp

Tuba 2

mp *mf* *p* *mp* *mf*

4 4 G ♩ = 60

136

Euph.

pp *mp* *pp*

Tuba 1

sing

p *mp* *pp*

Tuba 2

sing

p *pp* *p* *pp* *mp*

gliss.

141

Euph.

pp *p*

Tuba 1

pp *p* *mp*

Tuba 2

pp *p*

145

Euph.

mp *mf*

Tuba 1

pp *p*

Tuba 2

mp *mf* *pp*

gliss.

149

Euph.

pp *p* *mp* *f*

Tuba 1

mp *mf* *f*

Tuba 2

p *mp* *mf* *pp*

gliss.

153

Euph.

ord. flttz. ord.

pp *p* *mp*

Tuba 1

pp *p* *mp* *p*

5

Tuba 2

p *pp* *p* *pp* *mf* *p*

5 3

harm.

157

Euph.

pp *p* *mp* *pp* *p*

Tuba 1

mp *pp* *p* *mp*

Tuba 2

mf *p* *pp* *mp* *pp*

161

Euph.

mp *pp* *p* *mp*

Tuba 1

pp *p* *pp*

Tuba 2

pp *p* *pp*

4
4

165

Euph.

Tuba 1

Tuba 2

p

ppp

pp

ppp

mp

mp

mp

gliss.

3

173

Euph.

Tuba 1

Tuba 2

ppp

mp

pp

sfz

p

pp

sfz

pp

2
4

[illegible]

3
8

3
4

4
4

I

♩ = 108

accel.

181

Euph.

Tuba 1

Tuba 2

ord.

ord.

ord.

<f> *<ff>* *ppp* *sffz*

<f> *<f>* *<ff>* *ppp* *sffz* *pp* *sffz* *pp*

<f> *<ff>* *ppp* *sffz* *pp* *sffz*

gliss.

4
4

3
4

4
4

2
4

185

Euph.

Tuba 1

Tuba 2

sffz *pp* *sffz* *p* *sffz* *p* *sffz* *p*

sffz *p* *sffz* *sffz* *pp* *sffz* *flttz.*

sffz *p* *sffz* *sffz* *pp* *sffz* *gliss.*

tr.

4
4

3
4

4
4

189

Euph.

Tuba 1

Tuba 2

sffz *pp* *sffz* *p* *sffz* *pp* *sffz* *pp* *sffz*

sffz *pp* *sffz* *pp* *sffz* *pp* *sffz* *pp*

sffz *pp* *sffz* *pp* *sffz* *pp* *sffz* *pp*

tr.

gliss.

2
4

192

Euph.

Tuba 1

Tuba 2

mp

ppp

mf

pp

sfpp

sfz

ppp

mp

sfpp

mp

sfpp

gliss.

$\sim 5-6''$

$\sim 4''$

$\text{♩} = 108$

3
8

196

Euph.

Tuba 1

Tuba 2

sfz

pp

ppp

p > ppp

sfz

pp

ppp

p > ppp

sfz

pp

ppp

p > ppp

tr

tr

tr

$\sim 10''$

$\sim 2''$

$\text{♩} = 108$

$\text{♩} = 60$

Mira

for recorder, voice and electronics

(2013)

Daniel FÍGOLS-CUEVAS



contact@danielfigols.com

Mira



Symbols and technical instructions

Technical instructions:

Two microphones are needed to capture the sound of the recorder and the voice (input 1 and input 2 respectively).
Two options for performance are possible:

- 1. Live electronics:
The signal is sent to the MaxMSP patch.
- 2. Without electronics:
In this case, a simple amplification will suffice.

General indications:

- **Dynamics:**  *crescendo dal niente*, from silence and *decrescendo al niente*, to silence.
 Exponential *crescendo*.
- **Accidentals:** $\flat = -3/4$ $\flat = -1/4$ $\sharp = +1/4$ $\sharp = +3/4$
 $\flat = -1/2$ $\flat = 0$ $\sharp = +1/2$

Recorder:

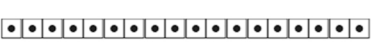
 Eolian sound, airy sound

 *Pizzicato*


 Multiphonic

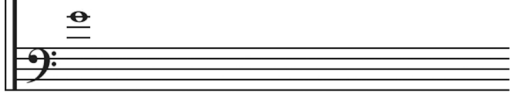
Vibrato  Vibrato following the frequency and amplitude indicated.

bisb.  Timbre trill

tong.  **Tonguing:** use tongue to stop the flow of air getting in the recorder mouthpiece.

Voice:

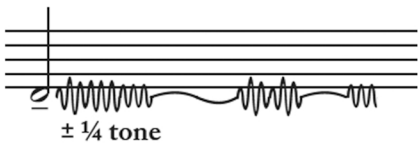
Harm. 

V. 



Vocal harmonics:
Change the vocal cavity in order to reinforce the partials notated on the score.


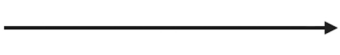



Glottal pressure:
Gradually increase the glottal tension of the vocal cords.



Vibrato:
Vibrato following the frequency and amplitude indicated.

 bisb.  Cover the mouth partially with the hand and gradually remove it at the speed indicated.

   Gradually cover the mouth until complete sound extinction.

 Produce a low and creaky voice.

Text in voice part is notated using International Phonetic Alphabet. See following chart for information.

THE INTERNATIONAL PHONETIC ALPHABET (revised to 2015)

CONSONANTS (PULMONIC) © 2015 IPA

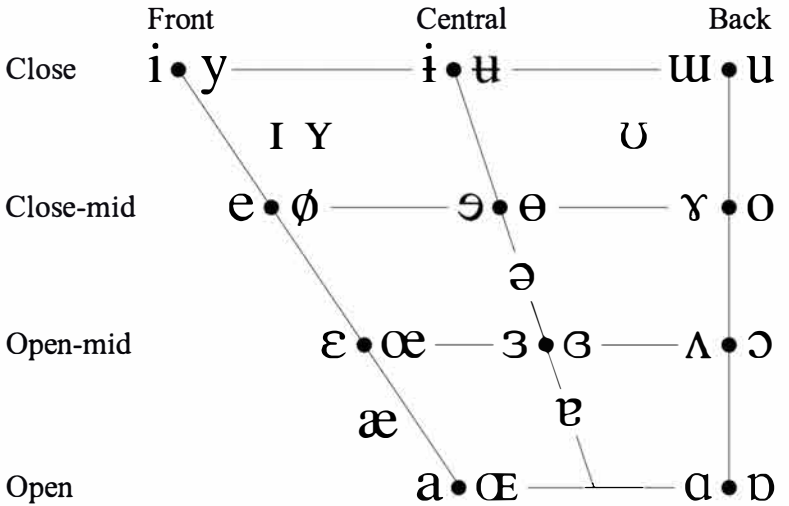
| | Bilabial | Labiodental | Dental | Alveolar | Postalveolar | Retroflex | Palatal | Velar | Uvular | Pharyngeal | Glottal |
|---------------------|----------|-------------|--------|----------|--------------|-----------|---------|-------|--------|------------|---------|
| Plosive | p b | | t d | | | ʈ ɖ | c ɟ | k ɡ | q ɢ | | ʔ |
| Nasal | m | ɱ | n | | | ɳ | ɲ | ŋ | ɴ | | |
| Trill | ʙ | | r | | | | | | ʀ | | |
| Tap or Flap | | ⱱ | ɾ | | | ɽ | | | | | |
| Fricative | ɸ β | f v | θ ð | s z | ʃ ʒ | ʂ ʐ | ç ʝ | x ɣ | χ ʁ | ħ ʕ | h ɦ |
| Lateral fricative | | | ɬ ɮ | | | | | | | | |
| Approximant | | ʋ | ɹ | | | ɻ | j | ɰ | | | |
| Lateral approximant | | | l | | | ɭ | ʎ | ʟ | | | |

Symbols to the right in a cell are voiced, to the left are voiceless. Shaded areas denote articulations judged impossible.

CONSONANTS (NON-PULMONIC)

| Clicks | Voiced implosives | Ejectives |
|------------------|-------------------|-----------------------|
| ◌ Bilabial | ɓ Bilabial | ʼ Examples: |
| Dental | ɗ Dental/alveolar | pʼ Bilabial |
| ! (Post)alveolar | ɟ Palatal | tʼ Dental/alveolar |
| ≠ Palatoalveolar | ɡ Velar | kʼ Velar |
| Alveolar lateral | ɠ Uvular | sʼ Alveolar fricative |

VOWELS



Where symbols appear in pairs, the one to the right represents a rounded vowel.

OTHER SYMBOLS

- ɱ Voiceless labial-velar fricative
 - ç ʒ Alveolo-palatal fricatives
 - ʋ Voiced labial-velar approximant
 - ɻ Voiced alveolar lateral flap
 - ɰ Voiced labial-palatal approximant
 - ħ Simultaneous ʕ and ʁ
 - ħ Voiceless epiglottal fricative
 - ʕ Voiced epiglottal fricative
 - ʡ Epiglottal plosive
- Affricates and double articulations can be represented by two symbols joined by a tie bar if necessary.
- ts kp

SUPRASEGMENTALS

- ˈ Primary stress
- ˌ Secondary stress
- ː Long
- ˑ Half-long
- ◌ Extra-short
- ◌ Minor (foot) group
- ◌ Major (intonation) group
- ◌ Syllable break
- ◌ Linking (absence of a break)

DIACRITICS Some diacritics may be placed above a symbol with a descender, e.g. ɲ̥

| | | | | | |
|-------------------|------|-------------------------------|-----|----------------------|-----|
| ◌ Voiceless | ◌ ̥ | ◌ Breathy voiced | ◌ ̤ | ◌ Dental | ◌ ̪ |
| ◌ Voiced | ◌ ̚ | ◌ Creaky voiced | ◌ ̜ | ◌ Apical | ◌ ̽ |
| h Aspirated | ◌ ʰ | ◌ Linguolabial | ◌ ̍ | ◌ Laminal | ◌ ̎ |
| ◌ More rounded | ◌ ̙ | ◌ Labialized | ◌ ̙ | ◌ Nasalized | ◌ ̃ |
| ◌ Less rounded | ◌ ̙̥ | ◌ Palatalized | ◌ ̟ | ◌ Nasal release | ◌ ̚ |
| ◌ Advanced | ◌ ̟ | ◌ Velarized | ◌ ̙ | ◌ Lateral release | ◌ ̚ |
| ◌ Retracted | ◌ ̠ | ◌ Pharyngealized | ◌ ̙ | ◌ No audible release | ◌ ̚ |
| ◌ Centralized | ◌ ̞ | ◌ Velarized or pharyngealized | ◌ ̙ | | |
| ◌ Mid-centralized | ◌ ̞̞ | ◌ Raised | ◌ ̚ | | |
| ◌ Syllabic | ◌ ̚ | ◌ Lowered | ◌ ̚ | | |
| ◌ Non-syllabic | ◌ ̚ | ◌ Advanced Tongue Root | ◌ ̚ | | |
| ◌ Rhoticity | ◌ ̚ | ◌ Retracted Tongue Root | ◌ ̚ | | |

TONES AND WORD ACCENTS

- LEVEL
- CONTOUR
- ◌ Extra high
- ◌ High
- ◌ Mid
- ◌ Low
- ◌ Extra low
- ◌ Downstep
- ◌ Upstep
- ◌ Rising
- ◌ Falling
- ◌ High rising
- ◌ Low rising
- ◌ Rising-falling
- ◌ Global rise
- ◌ Global fall

Mira

for voice, recorder and live electronics
commissioned by UMS 'n JIP

Daniel FÍGOLS - CUEVAS
2013

4 **4** **Molto fluido**
♩ = 120
molto legato

Sub-bass in F Recorder

mp

mf

mp

mf

mp

mf

IPA: /v _____ u v _____ o v _____ u v _____ e v _____ o v _____ a v _____ i v _____

4 **3**
4 **4**

F Sb. Rec.

f

mp

mf

sfzppp

V.

a v

u v

e v

i

7 **3**
4 **4**

V.

bisb. ○ ≡ ●

gliss.

gliss.

sfzppp

pp

ppp

mp

Harm.

ppp

pp

ppp

mf

V.

(io)

i v

11 **4**
4

F Sb. Rec.

mp

mf

mp

mf

V.

v

a v

o v

e v

u v

e v

u v

14 $\frac{3}{4}$ $\frac{4}{4}$

Voice

F Sb. Rec.

V.

(v) (io) v a v

pp p pp sfz pp

gliss. gliss.

5 5 6 3

3 3 3 3

gliss. gliss.

5 6 5

18

V.

F Sb. Rec.

V.

bisb. $\circ \equiv \bullet$

gliss. gliss.

mf f mf p mp

mp f mp mp mp sf > p

5

$\pm \frac{1}{4}$ tone $\pm \frac{1}{4}$ tone

gliss. gliss.

v v v nan

21 $\frac{3}{4}$ $\frac{4}{4}$

F Sb. Rec.

V.

bisb. $\circ \equiv \bullet$

mp mp mf mf f > p mp ff

sf > p sf > p sf > p sf > p sf > p

tr gliss. tr gliss. tr gliss. tr gliss.

nan non nan non a v e v a e y

5 5 5 6 5 6 6 5 3

24 $\frac{3}{4}$ $\frac{4}{4}$

F Sb. Rec.

Harm.

V.

tr

p mp p mf > pp mp

p mp p mp p mf > pp tr

gliss.

i oi a v

3 3 5 5 5 6

28 ♩ = 120 rit.

V. *pizz.*

F. Sb. Rec.

V.

pp sfz mp sfz p sfz pp sfz p mp mp pp mf

mf sfz mf p sfz sfz pp mp ffz p

7 6 5 5 3 5 5

a v e v o v i - - - e o v i - - - e v

31 ♩ = 90

F Sb.
Rec.

mp *sfz* *sfz > p*

mf *pp* *mp* *mf* *sfz > p*

V.

(v) œ v v a v o v t(a) v

41 $\frac{4}{4}$

V. *gliss.*

F Sb. Rec. *mp sfz sfz sfz sfz mf p < sfz sfz pp p*

Harm. *mp mp mp p fpp f sfz fpp* *Whistling*

V. *y u y y u*

45 $\frac{3}{8}$ *rit.* $\frac{3}{4}$ $\text{♩} = 50$ $\frac{4}{4}$

F Sb. Rec. *p mp > pp p < mp > pp mp* *gliss. bisb. o ≡ • gliss. bisb. o ≡ •*

Harm. *p mp p* *bisb.*

V. *u - i y*

49

F Sb. Rec. *pp mf > pp mp mf > pp* *Basset Recorder Vibrato*

Harm. *mp pp sffz > ppp sffz > ppp sffz > ppp sffz > ppp sffz > ppp sffz*

V. *e y e y e y e y e y e*

53 $\text{♩} = 50$ *accel.*

Bst. Rec. *mf > pp mf > pp f > pp f > pp f > pp* *tong.*

V. *ppp sffz > ppp < sfz sffz > ppp sffz > ppp sffz > ppp*

y a y i a y e y a y

[illegible][illegible]

The musical score consists of two staves. The top staff is for the voice, labeled 'Bst. Rec.' on the left. It features a series of time signatures: 2/4, 3/4, 3/8, 2/4, 5/8, and 2/4. Above the staff, there are markings for 'bisb.' followed by a sequence of dots. The music includes various dynamic markings: *sfz pp*, *p > ppp*, *pp*, *mf*, *pp*, *f*, *pp*, and *ff*. The bottom staff is for the piano, labeled 'V.' on the left. It contains dynamic markings: *mp*, *pp*, *mf*, *pp*, *f*, *pp*, and *ff*. The lyrics 'ta y a y a y a y e' are written below the piano staff, aligned with the musical notes.

The musical score for 'Bst. Rec.' and 'V.' is presented on two staves. The 'Bst. Rec.' staff is in treble clef and the 'V.' staff is in bass clef. The score is divided into four measures, each with a time signature change: 4/4, 3/8, 3/4, 3/8, and 3/4. The 'Bst. Rec.' staff features a series of eighth notes in the first measure, followed by a sixteenth-note figure in the second measure, and a series of eighth notes in the third measure. The 'V.' staff features a series of eighth notes in the first measure, followed by a sixteenth-note figure in the second measure, and a series of eighth notes in the third measure. The score includes dynamic markings such as *ppp*, *sfz*, *pp*, *p*, *mf*, *f*, and *pp*. The tempo is marked 'Allegretto' and the time signature is '3/8'.

The musical score is divided into two systems. The first system is for 'Bst. Rec.' and 'V.' and the second system is for 'Bst. Rec.' and 'V.'.

First System:

- Bst. Rec. (Treble Clef):** Starts with a key signature of one sharp (F#) and a tempo marking of 78. The music is marked *ppp*. It features a series of eighth notes, a half note, and a quarter note. A dynamic marking of *pp* is present.
- V. (Bass Clef):** Starts with a key signature of one sharp (F#) and a tempo marking of 78. The music is marked *pp*. It features a series of eighth notes, a half note, and a quarter note. A dynamic marking of *p* is present.

Second System:

- Bst. Rec. (Treble Clef):** Starts with a key signature of one sharp (F#) and a tempo marking of 78. The music is marked *ppp*. It features a series of eighth notes, a half note, and a quarter note. A dynamic marking of *pp* is present.
- V. (Bass Clef):** Starts with a key signature of one sharp (F#) and a tempo marking of 78. The music is marked *pp*. It features a series of eighth notes, a half note, and a quarter note. A dynamic marking of *p* is present.



101 4/4

A. Rec.

bisb. ●●●●●●●●●●●●●●●●

mf sfz p mp sfz sfz mp p mp

mp mf p sfz p sfz pp ff mp p <mp> p sfz p sfz p pp <mp> p <mp>

V.

up in am com in i

gliss. Δ an an an an om com in i

105

(bisb.)
gliss.
gliss.

mp

pp

<mf> pp

<mp> pp

<p> pp

<sfz>

pp

<sfz>

pp

ppp

gliss.

a

aɲ

om

ɔɲ

iɲ

o

molto rit.

109 Senza tempo

Sopranino mouthpiece only

Cover labium with hand

~ 6"

~ 6"

~ 5"

pp

pppp

pp

pppp

pp

pppp

~ 10"

~ 10"

~ 5"

~ 2"

pp

p

sfz

sfz

sfz

p

mf

112 3/8 ♩ = 82 Senza tempo

~ 1"

~ 1"

~ 4"

~ 1"

~ 1"

~ 4"

sfz

sfz

sfz

sfzpp

sfzpp

p

ppp

sfz

sfz

sfz

sfzpp

sfzpp

sfzpp

sfzpp

mf

pp

sfz

sfz

sfz

sfzpp

sfzpp

sfzpp

~ 7"

~ 1"

~ 2"

~ 3"

116 5/16 ♩ = 82 Senza tempo

mount body

~ 5"

~ 5"

~ 10"

sfz

sfz

sfz

sfz

sfz

pp

ff

mp

ff

~ 10"

sfz

sfz

sfz

sfz

sfz

p

mp

mp

p

sfz

sfz

sfz

sfz

sfz

s

i

High multiphonic

[illegible]

Hach

for small ensemble

(2014)

Daniel FÍGOLS-CUEVAS



contact@danielfigols.com

Hach

(2014)

Instrumentation:

Flute
Bass clarinet
Percussion
Harp
Violin
Double bass



Daniel FÍGOLS - CUEVAS

contact@danielfigols.com

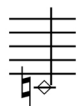

Hach

Symbols and technical instructions

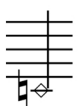
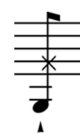

General indications:

- **Dynamics:**  *crescendo dal niente*, from silence and *decrescendo al niente*, to silence.
 Exponential *crescendo*.
- **Accidentals:** ♭ = -3/4 ♮ = -1/4 ‡ = +1/4 # = +3/4
 ♭ = -1/2 ♮ = 0 # = +1/2

Flute:

 Eolian sound, airy sound  *Pizzicato*


Bass clarinet:


 Eolian sound, airy sound  Slap tongue  Grace notes accelerating for the duration indicated.


Percussion:

ds. : Dead stroke, stop all resonance by keeping the stick or mallet on the surface of the instrument just after the hit.

Harp:

 **Fingernail buzz:** plug the strings with the nail and let it buzz by keeping the fingernail very close.

 **Fingernail:** plug the strings with the fingernail.

 **Xylophonic sounds:**
Press the lowest extremity of the strings indicated with the finger-tips of the left hand.
Play ordinarily with the right hand. This effect can also be obtained with only one hand,
but only for isolated notes: firmly press the tip of the 4th finger on the lowest extremity
of the string and pluck ordinarily with the 2nd finger.

Strings:

- **Right hand:**

Bow position: (see diagram)

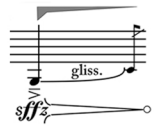
MST, *molto sul tasto*

ST, *sul tasto*

N, *normrale*

SP, *sul ponticello*

MSP, *molto sul ponticello*



Bow pressure on the strings.

- **Left hand:**



Very high pitch (as high as possible).



Pitch vibrato: follow the amplitude and frequency indicated.



Multiphonics:

Adjust the position of the bow and pressure to obtain an instable chord composed by the pitches notated.

Accidentals apply to the entire bar.

for Lontano Ensemble

2014

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29

[illegible]

33 $\frac{3}{4}$ $\frac{2}{4}$ $\frac{3}{4}$

Fl. *sfzp* *sim.* *mp* *f* *mp* flttz.

B. Cl. *p* *mp* *f* *p*

Cym. *ppp* *mp*

Crt.

Vib. *ppp* *mp* *f*

Hp. *sfzppp* *sim.* *f* *mp* *f* *f*

Vln. *f* *p* *pp* *mf* *gliss.* *sfz* *p*

D.B. *ff* *mp* *p* *f* *f*

(MSP)

ptzz. 0 0

gliss. gliss.

36 $\frac{4}{4}$ $\frac{3}{4}$

Fl. *sfz* *p* *sfzpp* *sfzpp* *sfzpp* *sfzpp* *sfz* *mf* *pp*

B. Cl. *sfz* *sfzp* *sfzp* *sfzp* *sfzp* *sfzp*

Cym.

Crt.

Vib. *p* *mf*

Hp. *mp* *p* *f* *pp* *f* *pp* *mf < f*

Vln. *mp* *gliss.* *p* *mf* *gliss.* *mp* *p* *pp* *mf* *mf* *gliss.* *p* *mf > mp* *mf < f*

D.B. *mp* *mf* *f* *p* *f* *mp* *f* *mp*

(ST) sempre

gliss. gliss. gliss. gliss. gliss. gliss. gliss. gliss.

gliss. gliss. gliss. gliss. gliss. gliss. gliss. gliss.

34

[illegible]

51

Fl. *pp* *p* *pp* *pp* *ppp*

B. Cl. *pp* *p* *pp*

Cym. *arco*

Crt. *pp*

Vib. *arco* *p*

Hp. C# *pp*

Vln. 0 II. *p* *mp* *gliss.*

D.B. *mf* *p*

Double bar line

55

Fl. *mp* *pp* *p* *f* *fff* *sfz* *~ 5"*

B. Cl. *pp* *p* *pp* *mp* *f* *fff* *sfz* *~ 5"*

Cym. *arco*

Crt. *p* *mf* *f* *fff* *sfz* *d.s.* *~ 5"*

Vib. *~ 5"*

Hp. *p* *~ 5"*

Vln. *p* *mp* *f* *fff* *ff* *pizz.* *~ 5"*

D.B. *ppp* *p* *mp* *mf* *ff* *fff* *sfz* *~ 5"*

Shī

for female choir

(2014)

Daniel FÍGOLS-CUEVAS



contact@danielfigols.com

Shī

(2014)

《施氏食獅史》

石室詩士施氏，嗜獅，誓食十獅。
氏時時適市視獅。
十時，適十獅適市。
是時，適施氏適市。
氏視是十獅，恃矢勢，使是十獅逝世。
氏拾是十獅屍，適石室。
石室濕，氏使侍拭石室。
石室拭，氏始試食是十獅。
食時，始識是十獅屍，實十石獅屍。
試釋是事。

« Shī Shì shí shī shǐ »

Shíshì shīshì Shī Shì, shì shī, shì shí shí shī.
Shì shíshí shì shì shì shī.
Shí shí, shì shí shī shì shì.
Shì shí, shì Shī Shì shì shì.
Shì shì shì shí shī, shì shǐ shì, shǐ shì shí shī shìshì.
Shì shí shì shí shī shī, shì shíshì.
Shíshì shī, Shì shǐ shì shì shíshì.
Shíshì shì, Shì shǐ shì shí shì shí shī.
Shí shí, shǐ shí shì shí shī shī, shí shí shí shī shī.
Shì shì shì shì.

"Lion-Eating Poet in the Stone Den"

In a stone den was a poet called Shi Shi, who was a lion addict, and had resolved to eat ten lions.
He often went to the market to look for lions.
At ten o'clock, ten lions had just arrived at the market.
At that time, Shi had just arrived at the market.
He saw those ten lions, and using his trusty arrows, caused the ten lions to die.
He brought the corpses of the ten lions to the stone den.
The stone den was damp.
He asked his servants to wipe it.
After the stone den was wiped, he tried to eat those ten lions.
When he ate, he realized that these ten lions were in fact ten stone lion corpses.
Try to explain this matter.

Performance notes:

- The text notation uses International Phonetic Alphabet (IPA).
- Spoken parts are written using 3-lines staff and X note heads.
- Dynamics a relative to other voices.

Daniel FÍGOLS - CUEVAS

contact@danielfigols.com

Shi

《施氏食獅史》

"Lion-Eating Poet in the Stone Den"
for female choir

Daniel FÍGOLS - CUEVAS
2014

3 Calm
4 ♪ = 60

Score for Soprano 1, Soprano 2, Alto 1, and Alto 2. The music is in 3/4 time, marked "Calm" with a tempo of ♪ = 60. The key signature has one sharp (F#). The lyrics are "fi". Dynamics include *p* (piano) and *gliss.* (glissando).

Score for Soprano 1 (S 1), Soprano 2 (S 2), Alto 1 (A 1), and Alto 2 (A 2). The music is in 4/4 time, marked *mf* (mezzo-forte). The key signature has one sharp (F#). The lyrics are "fi". Dynamics include *mf*, *pp* (pianissimo), and *mp* (mezzo-piano). The section is marked with a double bar line and the number 5 in a box.

Score for Soprano 1 (S 1), Soprano 2 (S 2), Alto 1 (A 1), Alto 2 (A 2), and Alto 2b (A 2b). The music is in 4/4 time, marked *p* (piano). The key signature has one sharp (F#). The lyrics are "fi". Dynamics include *p*, *mp* (mezzo-piano), and *pp* (pianissimo). The section is marked with a double bar line and the number 9 in a box. A section marked "A" in a box is also present. An arrow labeled "divisi" points to the A 2b part.

[illegible]

B

23 ♩ = 70 Moving

Score for measures 23-25. Instruments: S 1, S 2, A 1, A 2.

Measure 23: S 1 (f, mp), S 2 (f, mp), A 1 (f, mp), A 2 (mp).

Measure 24: S 1 (mp, f), S 2 (f, mp), A 1 (mp, f), A 2 (f, mp).

Measure 25: S 1 (f, p), S 2 (f, mp), A 1 (f, p), A 2 (mp).



26

2/4

3/4

Score for measures 26-29. Instruments: S 1, S 1b, S 2, S 2b, A 1, A 1b, A 2, A 2b.

Measure 26: S 1 (sfz pp), S 1b (sfz pp), S 2 (p gliss.), A 1 (p gliss.), A 2 (sfz pp), A 2b (sfz pp).

Measure 27: S 1 (p), S 1b (p), S 2 (p), A 1 (p), A 2 (p), A 2b (p).

Measure 28: S 1 (mf), S 1b (p), S 2 (mf > p), S 2b (mf > p), A 1 (mf > p), A 1b (mf > p), A 2 (mf), A 2b (p).

Measure 29: S 1 (mp, pp), S 1b (pp), S 2 (mf, p), S 2b (mf, p), A 1 (mf, p), A 1b (pp sotto voce), A 2 (mp, pp), A 2b (pp).

ritardando

34 C $\text{♩} = 66$

a tempo

4/4 3/4

S 1 *mf* *f* *ff* *p* *mp* *f* *ff* *p* *gliss.*

S 1b *mf* *f* *ff* *p* *mp* *f* *ff* *p* *mf*

S 2 *mf* *f* *ff* *p* *mp* *f* *ff* *p*

S 2b *mf* *f* *p* *f* *p* *mp* *f* *sfz* *p* *pp*

A 1 *mf* *f* *p* *f* *p* *mp* *f* *sfz* *p* *pp*

A 1b *mf* *f* *p* *f* *p* *mp* *f* *sfz* *p* *pp*

A 2 *sfzp* *f* *p* *f* *p* *mp* *f* *sfz* *p* *pp*

A 2b *sfzp* *f* *p* *f* *p* *mp* *f* *sfz* *p* *pp*

gliss. *gliss.* *gliss.* *gliss.* *gliss.* *gliss.* *gliss.* *gliss.*

mf *f* *ff* *p* *mp* *f* *ff* *p* *mf*

mf *f* *ff* *p* *mp* *f* *ff* *p* *mf*

mf *f* *ff* *p* *mp* *f* *ff* *p* *mf*

mf *f* *p* *f* *p* *mp* *f* *sfz* *p* *pp*

mf *f* *p* *f* *p* *mp* *f* *sfz* *p* *pp*

sfzp *f* *p* *f* *p* *mp* *f* *sfz* *p* *pp*

sfzp *f* *p* *f* *p* *mp* *f* *sfz* *p* *pp*

gliss. *gliss.* *gliss.* *gliss.* *gliss.* *gliss.* *gliss.* *gliss.*

mf *f* *ff* *p* *mp* *f* *ff* *p* *mf*

mf *f* *ff* *p* *mp* *f* *ff* *p* *mf*

mf *f* *ff* *p* *mp* *f* *ff* *p* *mf*

mf *f* *p* *f* *p* *mp* *f* *sfz* *p* *pp*

mf *f* *p* *f* *p* *mp* *f* *sfz* *p* *pp*

sfzp *f* *p* *f* *p* *mp* *f* *sfz* *p* *pp*

sfzp *f* *p* *f* *p* *mp* *f* *sfz* *p* *pp*

gliss. *gliss.* *gliss.* *gliss.* *gliss.* *gliss.* *gliss.* *gliss.*

mf *f* *ff* *p* *mp* *f* *ff* *p* *mf*

mf *f* *ff* *p* *mp* *f* *ff* *p* *mf*

mf *f* *ff* *p* *mp* *f* *ff* *p* *mf*

mf *f* *p* *f* *p* *mp* *f* *sfz* *p* *pp*

mf *f* *p* *f* *p* *mp* *f* *sfz* *p* *pp*

sfzp *f* *p* *f* *p* *mp* *f* *sfz* *p* *pp*

sfzp *f* *p* *f* *p* *mp* *f* *sfz* *p* *pp*

gliss. *gliss.* *gliss.* *gliss.* *gliss.* *gliss.* *gliss.* *gliss.*

mf *f* *ff* *p* *mp* *f* *ff* *p* *mf*

mf *f* *ff* *p* *mp* *f* *ff* *p* *mf*

mf *f* *ff* *p* *mp* *f* *ff* *p* *mf*

mf *f* *p* *f* *p* *mp* *f* *sfz* *p* *pp*

mf *f* *p* *f* *p* *mp* *f* *sfz* *p* *pp*

sfzp *f* *p* *f* *p* *mp* *f* *sfz* *p* *pp*

sfzp *f* *p* *f* *p* *mp* *f* *sfz* *p* *pp*

gliss. *gliss.* *gliss.* *gliss.* *gliss.* *gliss.* *gliss.* *gliss.*

mf *f* *ff* *p* *mp* *f* *ff* *p* *mf*

mf *f* *ff* *p* *mp* *f* *ff* *p* *mf*

mf *f* *ff* *p* *mp* *f* *ff* *p* *mf*

mf *f* *p* *f* *p* *mp* *f* *sfz* *p* *pp*

mf *f* *p* *f* *p* *mp* *f* *sfz* *p* *pp*

sfzp *f* *p* *f* *p* *mp* *f* *sfz* *p* *pp*

sfzp *f* *p* *f* *p* *mp* *f* *sfz* *p* *pp*

gliss. *gliss.* *gliss.* *gliss.* *gliss.* *gliss.* *gliss.* *gliss.*

mf *f* *ff* *p* *mp* *f* *ff* *p* *mf*

mf *f* *ff* *p* *mp* *f* *ff* *p* *mf*

mf *f* *ff* *p* *mp* *f* *ff* *p* *mf*

mf *f* *p* *f* *p* *mp* *f* *sfz* *p* *pp*

mf *f* *p* *f* *p* *mp* *f* *sfz* *p* *pp*

sfzp *f* *p* *f* *p* *mp* *f* *sfz* *p* *pp*

sfzp *f* *p* *f* *p* *mp* *f* *sfz* *p* *pp*

gliss. *gliss.* *gliss.* *gliss.* *gliss.* *gliss.* *gliss.* *gliss.*

mf *f* *ff* *p* *mp* *f*

Score for measures 38-40. The score is written for eight parts: S 1, S 1b, S 2, S 2b, A 1, A 1b, A 2, and A 2b. The key signature is B-flat major (two flats). The time signature is 4/4. The tempo is *meno mosso*. The score includes various dynamics such as *mfpp*, *pp*, *mf*, *p*, *mp*, *f*, *sfz*, and *mp*. It also features articulation marks like *sotto voce* and *gliss.*, and performance instructions like *fi* and *i*. The notation includes eighth notes, quarter notes, and half notes, with some parts featuring triplets and slurs.

Score for measures 41-43. The score continues for the same eight parts: S 1, S 1b, S 2, S 2b, A 1, A 1b, A 2, and A 2b. The key signature remains B-flat major. The time signature is 4/4. The score includes various dynamics such as *pp*, *p*, *mp*, and *f*. It also features articulation marks like *sotto voce* and *gliss.*, and performance instructions like *fi* and *i*. The notation includes eighth notes, quarter notes, and half notes, with some parts featuring triplets and slurs.

34

♩ = 50

44

E

♩ = 60

[illegible]

59

[illegible]



Blanc Cassé

for ensemble

(2014)

for Vertixe Sonora

-

Daniel FÍGOLS-CUEVAS

contact@danielfigols.com

Blanc cassé

(2014)

Instrumentation:

Flute (Bass flute)
Soprano saxophone (Tenor sax)
C Trumpet
F Horn
Trombone

Percussion
(Vibraphone, Large and sizzle cymbals,
3 toms, tam-tam, Bass drum)

Electric guitar
Piano
Accordion

Violin
Violoncello
Double Bass

Daniel FÍGOLS - CUEVAS

contact@danielfigols.com

Score in C

to Brick Lane 49ers
Blanc cassé

for Vertixe Sonora

Daniel FÍGOLS - CUEVAS
2014

4/4 Deep and dark $\text{♩} = 55$

3/4 **4/4**

Flute (Bass flute) *pp* *mp* *pp* *mp* *p*

Tenor Sax *p* *mp* *p* *p* *mp*

C Trumpet *p* *f* *p*

F Horn *pp* *p* *mp* *pp* *p* *pp*

Trombone *pp* *mp* *p* *p* *mp*

Tam-tam *pp* *p* *mp* *pp* *p*

Bass Drum *pp*

Vibraphone

Electric Guitar *pp* bend *simile* 5 3

Piano *mp*

Accordion *ppp* *mp* *mf* *ppp* *mp* *ppp* *ff* *ppp*

Violin

Cello

Double bass

5

3/8 4/4

Fl.

T. Sx.

Trpt.

Hn.

Tbn.

Perc.

Perc.

E. Gtr.

Pno.

Acc.

Vln.

Vc.

D.B.

bisb. $\circ \cong \bullet$

bisb. $\circ \cong \bullet$

voice

mf p pp p pp p

p f p pp p

p f p pp p

mp p pp p

mp p ppp p

mf pp mf p

mp p

mf ppp mp ppp ppp

pp ppp

pp ppp

mp ppp

pp ppp

mp ppp

mp

5

3/8 4/4

5

3/8 4/4

pizz.

pizz.

L

mp

9

13 $\frac{3}{4}$ $\frac{2}{4}$ *molto rit.* $\frac{4}{4}$ **A** Frozen $\text{♩} = 40$

Fl. *ppp* *pppp* *subtone*

T. Sx. *pppp*

Trpt. $\frac{1}{2} \circ$ $\frac{1}{2} \circ$ $\frac{1}{2} \circ$ *pppp*

Hn. $\frac{1}{2} \circ$ $\frac{1}{2} \circ$ $\frac{1}{2} \circ$ *pppp* **Mute Off**

Tbn. *pppp* *Sub*

Perc. *ppp*

Perc. *pp* *pp* *pp*

E. Gtr. (15^{ma}) (Ebow) *ppp < pp >* *ppp < pp >* *ppp < pp >* *ppp < pp >*

Pno. *p* **pizz.** *pp*

Acc. *pppp* *< pp >* *< pp >* *< pp >* *< pp >*

Vln. $\frac{3}{4}$ $\frac{2}{4}$ $\frac{4}{4}$ **SP** *pp* *ppp* *< p > ppp* *< p > ppp* *< p > ppp* *< p >*

Vc. *pppp* **ST** *gliss.*

D.B. *pppp* **ST**

44

18

23

27

Fl. 8 *mfpp* *mp* *mfpp* *mp* *mfpp* *mp*

T. Sx. *p* *p* *p* *mf* *p* *p*

Trpt.

Hn.

Tbn. *pp* (8^{vb})

Perc. 27 *pp*

Vib. *pp*

E. Gtr. 8 *mf*

Pno. *pp* (8^{va})

Acc. *mp*

27

Vln. *ppp* *mf*

Vc. *ppp* *mp* *mf*

D.B. *ppp* *mf*

Diagram illustrating the musical score for the piece "Blanc cassé", page 10. The score is written for a large ensemble, including Flute (Fl.), Trombone (T. Sx.), Trumpet (Trpt.), Horn (Hn.), Tuba (Tbn.), Percussion (Perc.), Vibraphone (Vib.), Electric Guitar (E. Gtr.), Piano (Pno.), Accordion (Acc.), Violin (Vln.), Viola (Vc.), and Double Bass (D.B.). The score is divided into three systems, each starting with a measure number 27. The first system shows the Flute, Trombone, Trumpet, Horn, Tuba, Percussion, and Vibraphone parts. The second system shows the Electric Guitar, Piano, Accordion, and Violin parts. The third system shows the Viola, Double Bass, and Double Bass parts. The score includes various musical notations, including dynamics (e.g., *mfpp*, *mp*, *p*, *mf*, *pp*, *ppp*), articulation (e.g., *bisb.*, *mfpp*, *mp*, *p*, *mf*, *pp*, *ppp*), and performance instructions (e.g., *mfpp*, *mp*, *p*, *mf*, *pp*, *ppp*). The score is written in a complex, multi-measure format, with many measures containing multiple notes and rests. The score is written in a complex, multi-measure format, with many measures containing multiple notes and rests.

[illegible]

33

Fl. *mfpp* *mp* *mfpp* *mp* *mfpp* *mp*

T. Sx. *p* *p* *p* *p* *p* *p*

Trpt. *mp* *mfpp* *pp* *p* *mp* *p* *p* *mp* *p* *mp*

Hn. *ff* *pp* *pp* *pp* *pp* *pp*

Tbn. *pp* *pp* *pp*

Perc. *pp* *pp*

E. Gtr. *pp* *pp*

Pno. *pp* *pp*

Acc. *pp* *pp*

Vln. *pp* *pp* *ppp*

Vc. *ppp* *pp* *ppp* *ppp* *ppp*

D.B. *mf* *ppp*

timbre tr. \diamond \circ \equiv \bullet

33

33

36 $\frac{3}{4}$ $\frac{4}{4}$ $\frac{3}{4}$ C $\text{♩} = 80$

Fl. *mp* *mf* *f* T.R. *sfz*

T. Sx. *p* *p* *mp* *p* *f* *sfz*

Trpt. *p mp > pp* *mp* *mf > p* *f > mf* *sfz* *p < sfz > p < sfz > p* simile

Hn. *(pp)* *mf*

Tbn. *(pp)* *(8^{va})* *mf* *pp < sfz > pp < sfz > pp < sfz > pp < sfz > pp < sfz > pp <*

Perc. *p* *mp* *mf* *

Perc. *p* *mp* *mf*

E. Gtr. *distorsion* *pp < sfz > p pp < sfz > p* simile

Pno. *f*

Acc. *pp < sfz > pp < sfz > pp < sfz >* simile

Vln. *MST* *pizz.* *f* *f* *p < sfz > p gliss. < sfz > p gliss. < sfz > p gliss. < sfz > p gliss. < sfz > p* simile

Vc. *f* *p* *< sfz > p < sfz > p* simile

D.B. *f* *ff*

40 4/4 3/4 5/4

Fl. *pp* *mf* *pp*

T. Sx. *pp* *p* timbre tr. $\circ \equiv \bullet$ *mfpp* timbre tr. $\circ \equiv \bullet$ *mfpp*

Trpt. *ppp* *p*

Hn. *pp* *p*

Tbn. *sfz* *pp* *mf* *pp* *pp* *sfz* *pp* *sfz* *mf* *pppp*

40 4/4 3/4 5/4

Perc. 3 Toms *p* *< f* *p* *< f*

Vib. Bow

E. Gtr. *clean* *distorsion* *sfz* *pp* *p* *pp* *pp* *pp* *sfz* *p* *pp* *sfz* *p*

Pno. *pp* *p*

Acc. *pp* *mp* *mfpp* *mfpp*

40 4/4 3/4 5/4

Vln. *pizz.* *sfz* *arco* *sfz* *p* *gliss.* *sfz* *p* *SP* *mp* *gliss.* *sfz* *p* *sfz* *mf*

Vc. *pizz.* *sfz* *arco* *mp* *sfz* *p* *sfz* *mf*

D.B. *sfz* *sfz*

[illegible]

47 $\frac{3}{4}$ $\frac{4}{4}$

Fl. *pppp*

T. Sx. *pppp*

Trpt. $\frac{1}{2}$ *pppp*

Hn. $\frac{1}{2}$ *pppp*

Tbn. (8^{th}) *pppp*

Perc. *ppp*

Perc. *pp*

E. Gtr. *ppp*

Pno. *p* *pp*

Acc. *pp* *finger trill* *3*

Vln. *pp* *mp* *sfz* *mf* *pp*

Vc. *mf* *pp* *sfz* *pp* *f* *p*

D.B. *sfz pp* *sfz* *mf* *pp* *f* *p*

Soprano Flute *molto legato* *ppp*

Soprano Saxophone *ppp*

47 $\frac{3}{4}$ $\frac{4}{4}$

50

Fl. *(ppp)* *ppp* *p*

S. Sx. *(ppp)* *ppp* *p*

Trpt.

Hn.

Tbn.

50

Perc. *ppp* *ppp* *<pp>* *<pp>*

E. Gtr. *p* *p*

Pno.

Acc. *(pp)* *p*

50

Vln. *mf*

Vc. *mf*

D.B. *mf*

53 $\frac{3}{4}$ ♩ = 80

Fl. (hjsb). *mf* *f* *ff* *f* j.w. j.w. j.w. j.w. j.w.

S. Sx. (Sw) (bisb.) *f* *sfz* *sfz* *sfz* *ff* S. t.

Trpt. *p* *ff*

Hn. *pp* *ff*

Tbn. *pp* *f* *sfz* *pp* *sfz* *pp* *sfz* *pp* *sfz* *pp* *sfz*

Perc. *pp* *p* *f* *p* *mp* *mf* *f* *mp*

Perc. *p* *mp* *mf* *f* *mp*

E. Gtr. *pp* *sfz* *p* *pp* *sfz* *p* *pp* *sfz* *p* *pp* *sfz* *p* *ppp* Full distortion Wa-wa Ped. bend

Pno. *p* *p* *f* *mf* *f* *ff* *sfz* *sfz*

Acc. *p* *f* *pp* *sfz* *pp* *sfz* *pp* *sfz* *pp* *sfz* *pp* *sfz*

Vln. *III* *IV* *III* *p* *gliss.* *sfz* *p* *gliss.* *sfz* *p* *gliss.* *sfz* *p* *gliss.* *sfz* *p* *gliss.* *sfz* *p*

Vc. *III* *II* *IV* *III* *I* *II* *I* *sfz*

D.B. *5* *3* *sfz* *sfz* *sfz* *sfz* *sfz*

56 4/4 $\text{♩} = 60$

Fl. *subito ppp* *pp* *ppp*

S. Sx. *subito ppp* *pp* *ppp* *p*

Trpt. *subito ppp*

Hn. *subito ppp*

Tbn. *cantabile* *mp* *p*

Perc. *pp* *pp*

Vib. *ppp* *ppp* *very soft sticks* *pp*

E. Gtr. *ppp*

Pno. *(piano)*

Acc. *p* Shadow of trombone

56 4/4

Vln. *pppp* *p* *pppp* *p* *pppp* *p* *pppp* *p*

Vc. *pppp* *p* *pppp* *p* *pppp* *p* *pppp* *p*

D.B. *pppp* *p* *p* *pppp* *p*

Fl.

S. Sax.

Trpt.

Hn.

Tbn.

59

Vib.

E. Gtr.

Pno.

Acc.

59

Vln.

Vc.

D.B.

high.

sfz

pp

ppp

p

mp

ffz

pp

mp

sfz

pp

plucked

mf

(p)

pp

sfz ppp

4/4

4/4

63

 $\frac{3}{4}$ $\frac{4}{4}$

Fl.

S. Sx.

Trpt.

Hn.

Tbn.

sfz \rightarrow *mf**mf ppp*

63

 $\frac{3}{4}$ $\frac{4}{4}$

Vib.

ppp

E. Gtr.

Pno.

*pizz.**pp*

Acc.

ppp

< >

< >

< >

< >

63

 $\frac{3}{4}$ $\frac{4}{4}$

Vln.

Vc.

D.B.

67

F

♩ = 50

Score for **Blanc cassé**, page 22. The score is for measures 67-70.

Fl. (Bass Flute): *colian*, *pp*, *3*.

S. Sx. (Soprano Saxophone): *pp*, *simile*.

Trpt. (Trumpet): *ppp*.

Hn. (Horn): *ppp*.

Tbn. (Tuba): *ppp*.

Vib. (Vibraphone): *pp*, *Bow*.

E. Gtr. (Electric Guitar): *ppp*, *Ebow*, *8va*.

Pno. (Piano): *15ma*, *ppp*.

Acc. (Accordion): *ppp*.

Vln. (Violin): *MSP*, *pppp*.

Vc. (Violoncello): *behind the bridge*, *ppp*.

D.B. (Double Bass): *pppp*.

72

Fl.

S. Sax.

Trpt.

Hn.

Tbn.

Perc.

Vib.

E. Gtr.

Pno.

Acc.

Vln.

Vc.

D.B.

72

72

pp

pp

ppp

pp

p

pp

smorz.

Hand

Ebrow

(15^{ma})

III.

77

Fl. *pp*

S. Sax. *(pp)*

Trpt. *pp* *ppp*

Hn. *pp* *ppp* *pp*

Tbn. *ppp* *pp*

Perc. *pp*

E. Gtr. *pp* *bend*

Pno. *(Xeo)*

Acc. *ppp*

77

Vln. *pp* IV.

Vc. *pp*

D.B. *pp*

Hand

Ebow

81 $\sim 5''$ $\frac{2}{4}$ G $\text{♩} = 80$ $\frac{3}{4}$ $\frac{4}{4}$ $\text{♩} = 60$

Fl. (pp)

S. Sx. pp

Trpt. pp

Hn. (pp)

Tbn. (pp)

Perc. p

Perc. p

E. Gtr. ff

Pno. (Reo.) ff mf

Acc. $pp < sfz$

Vln. ffz p

Vc. ffz $pizz.$ f $arco$ p

D.B. ffz $pizz.$ f p

d.s. p

d.s. p

c.l.b. mp

pizz. mp

Barcelona - London

Di(e)višķs

for saxophone and cello

(2015)

for Duo Denisov

Daniel FÍGOLS-CUEVAS



contact@danielfigols.com

Di(e)višķs

(2015)

Instrumentation:

Saxophone (Soprano, Baritone)
Cello



Daniel FÍGOLS - CUEVAS

contact@danielfigols.com

Score in C
Aprox. duration 7 min.

for Duo Denissou
Di(e)visões
for Saxophone and Cello

Daniel FÍGOLS - CUEVAS
2015

4/4 $\text{♩} = 55$

Soprano Sax

Cello

sfzppp *sfzppp* *ppp <sfz> ppp* *sfzppp* *sfzppp* *sfzppp* *sfzppp* *<sfz> ppp*

sfzpp *mf* *pp <sfzpp>* *mf* *pp sfzpp <p>* *pp sfzpp* *f* *pp sfzpp <mp>* *sfzpp*

3/4

S. Sax.

Vc.

sfzppp *sfzppp* *sfzppp* *sfzppp* *p* *ff* *pp*

sfzpp *gliss.* *mp* *sfzpp* *mf* *sfzpp* *mf* *p* *multiphonic* *ff* *p*

3/4

S. Sax.

Vc.

sfzppp *sfzppp* *sfzppp* *sfzppp* *sfzppp* *sfzppp* *ppp <sfz> ppp* *sfzppp*

sfzpp *sfzpp* *sfzpp* *gliss.* *mf* *pp sfzpp* *mf* *pp <sfzpp>* *mf* *pp sfzpp <p>* *pp sfzpp*

7

S. Sax.

Vc.

sfzppp *sfzppp* *sfzppp* *sfzppp* *ppp* *f* *p*

mf *pp <sfzpp>* *mp <sfzpp <mf> pp <sfzpp>* *ff* *pp*

9

S. Sax.

Vc.

sfzppp *sfzppp* *sfzppp* *sfzppp* *p* *ff* *pp*

sfzpp *gliss.* *mp* *sfzpp* *mf* *sfzpp* *mf > p* *ff* *p*



A

3/4

S. Sx. *pp* *mp* *pp* *p* *pp* *p*

Vc. *ppp* *< mp > ppp* *< mp > ppp* *< mp > ppp*

5/8

13

S. Sx. *sfzppp* *sfzppp* *f* *pp*

Vc. *sfzpp* *mp* *sfzpp* *gliss.* *sfzpp* *mp* *pp < sfzpp* *mp* *pp*

4/4

15

S. Sx. *pp immobile* *sfzppp* *f* *mf*

Vc. *pp immobile* *sfzpp* *f*

18

4/4

S. Sx. *sfzppp* *sfzppp* *mp* *sfzppp* *sfzppp* *mp* *sfzppp* *ppp < sfz > ppp* *sfzppp*

Vc. *pp sfzpp* *< mp > sfzpp* *pp < sfzpp* *mf* *pp < sfzpp* *mf* *pp sfzpp* *< p > pp sfzpp*

B

3/8

3/4

S. Sx. *pp immobile* *sfzppp* *sfz* *p*

Vc. *pp immobile* *sfzpp* *sfzpp* *voice*



23 $\frac{4}{4}$

S. Sx. *mp* *< mp > pp* *< mp > pp* *< mp > pp* *< mp > pp* *mf > pp* *mp* *p*

Vc. *mp* *ppp* *pp* *mf* *pp*

p *mf > pp*

25 $\frac{3}{4}$ $\frac{4}{4}$ C

S. Sx. *sfz ppp* *sfz ppp* *mp* *sfz ppp* *pp* *p*

Vc. *sfz ppp* *sfz ppp* *mp* *sfz ppp* *pp immobile* *< mp >*

gliss. *gliss.* *gliss.*

I. II.

27 $\frac{3}{4}$ $\frac{2}{4}$

S. Sx. *pp* *mp* *pp* *sfz ppp* *sfz ppp* *sfz ppp* *sfz ppp* *p* *mp* *f*

Vc. *< mp >* *pp* *pp* *sfz p* *sfz p* *sfz p* *sfz p* *mp*

voice

30 $\frac{3}{4}$ $\frac{4}{4}$

S. Sx. *sfz ppp* *sfz ppp* *sfz ppp* *sfz ppp* *sfz pp* *sfz* *sfz* *sfz pp* *p*

Vc. *sfz p* *sfz p* *sfz p* *sfz p* *sfz pp* *mp* *sfz pp* *mf* *sfz pp*

bisb. o = *gliss.* *gliss.* *gliss.*

32 $\frac{3}{4}$

S. Sx. *f* *p* *sfz ppp* *f* *mf* *sfz ppp* *sfz ppp* *sfz ppp* *sfz ppp*

Vc. *pp* *fp* *f* *p* *sfz* *sfz pp*



35 $\frac{4}{4}$ D $\text{♩} = 68-74$ $\frac{3}{4}$

S. Sx. *p* *f* *mf* *pp* *p* *ppp* *take baritone saxophone*

Vc. *<mp>* *<mf>* *<f>* *pp* *p* *<mp>* *<mp>*

voice

gliss.

39 $\frac{4}{4}$ $\frac{3}{4}$ Baritone Saxophone

S. Sx. *ppp* *mf* *mp*

Vc. *<mp>* *<mf>* *<mp>* *pp* *mf* *<f>* *<f>* *<f>* *mp*

gliss.

42 $\frac{4}{4}$ $\frac{3}{4}$ $\frac{4}{4}$ $\frac{5}{8}$

B. Sx. *mf* *pp* *mf* *pp* *p* *ppp* *sfz:ppp* *sfz:ppp*

Vc. *pp* *<mf>* *mp* *pp* *pp* *sfz* *mp* *sfz* *sfz:ppp*

gliss.

m.s.p.

ord.

46 $\frac{4}{4}$ $\frac{3}{8}$ E

B. Sx. *ppp* *pp immobile* *p* *sfz:ppp* *sfz:ppp* *sfz:ppp*

Vc. *ppp immobile* *gliss.* *gliss.* *sfz:pp*

I.

3

50 $\frac{4}{4}$ $\frac{3}{8}$ $\frac{4}{4}$

B. Sx. *ppp* *slap* *sfz* *sfz* *sfz* *sfz:pp* *sfz* *sfz:pp* *sfz*

Vc. *voice!* *p* *mp* *sfz* *mf* *mf* *f* *arco* *s.p.* *sfz*

pizz.

gliss.

bisb. $\circ = \bullet$



53 $\frac{3}{4}$

B. Sx. $\text{sfz} \text{ppp}$ $\text{sfz} \text{ppp}$ mp $\text{sfz} \text{ppp}$ $\text{sfz} \text{ppp}$ pp p

Vc. $\text{sfz} \text{ppp}$ $\text{sfz} \text{ppp}$ mp $\text{sfz} \text{ppp}$ $\text{sfz} \text{ppp}$ mp f mp f mp

m.s.p.

55 $\frac{4}{4}$

B. Sx. $\text{sfz} \text{ppp}$ mp $\text{sfz} \text{ppp}$ ppp $\text{sfz} \text{ppp}$ ppp mp

Vc. $\text{sfz} \text{pp}$ mf pp $\text{sfz} \text{pp}$ mf pp $\text{sfz} \text{pp}$ p pp $\text{sfz} \text{pp}$ mp

ord. m.s.p. ord. m.s.p. ord. m.s.p.

gliss. gliss. gliss. gliss. gliss. gliss.

57 $\frac{4}{4}$

B. Sx. mf ppp mp mf

Vc. pp p mp pp $\text{mf} > \text{pp}$ $< \text{mp} >$

gliss. gliss. gliss. gliss.

60 $\frac{3}{8}$ F $\text{♩} = 60$

B. Sx. $\text{sfz} \text{ppp}$ $\text{sfz} \text{ppp}$ $\text{sfz} \text{ppp}$ ppp immobile pp p ppp

Vc. sfz f sfz ppp pp immobile

ecrasé pizz. arco m.s.t. gliss. gliss. gliss. gliss.

63 $\frac{3}{4}$ $\frac{4}{4}$ $\frac{3}{4}$

B. Sx. ppp pp immobile pp

Vc. (pp) p pp $< p > \text{pp}$ $< p >$ $< p >$ pp immobile

ord. s.p. gliss. gliss. gliss. gliss.



67 $\frac{4}{4}$

B. Sx. pp ppp pp ppp sfz ff

Vc. ppp pp ppp pp ppp pp ppp sfz ff

gliss. *gliss.* *gliss.* *gliss.*

pizz.

71 $\frac{4}{4}$ $\text{♩} = 70$

B. Sx. $sfzpp$ $sfzpp$ pp $sfzff$ $sfzpp$ ff mf $sfzppp$ sfz ff

Vc. mf ff ff $sfzff$ sfz $mf > pp$ $< mp > pp$ sfz pp sfz sfz

arco *gliss.* *gliss.* *gliss.* *ecrasé*

bisb. o = •

$\frac{5}{8}$ $\text{♩} = 70$

voice

74 $\frac{4}{4}$ $\text{♩} = 60$

B. Sx. pp $< mp >$ p p mp pp

Vc. III. pp p mf p IV. pp

78 $\frac{4}{4}$ $\text{♩} = 70$ **G**

B. Sx. sfz sfz pp $sfzpp$ ppp *sempre*

Vc. sfz sfz pp sfz ppp *sempre*

pizz. *arco*

$\frac{3}{4}$

82 $\frac{4}{4}$ $\frac{3}{8}$ $\frac{4}{4}$

B. Sx. ppp sfz ff ppp

Vc. ppp sfz ff ppp

pizz.



Musical score for B. Sax. and Vc. from "The Great Wall of China". The score is divided into measures 104, 105, 106, 107, and 108. The time signatures are 2/4, 3/4, 4/4, and 3/8. The B. Sax. part features a complex melodic line with various dynamics (sfz, f, ffpp, ppp, ff, p) and articulations (trills, gliss., pizz.). The Vc. part provides a rhythmic accompaniment with dynamics (sfz, ppp, p, pp) and articulations (trills, gliss., pizz.). The score includes a key signature change to one flat (B-flat) and a tempo change to "Allegretto".



4/4 1 ♩ c. 56

Senza tempo (♩ c. 60)

3/4 ♩ = 80

4/4

take soprano saxophone

S. Sx. Soprano Saxophone

Voice

Vc. (pizz.) arco

sfz *f* *sfz* *p* *mp* *mf*

pp *pp* *mf* *ff* *pp* *sfz* *p* *sfz* *mp* *sfz* *mf*

III. *pp*

III. *mf* *f* *sfz*

112 Senza tempo (♩ c. 60)

3/8 ♩ = 82

2/4

Senza tempo (♩ c. 60)

3/16

S. Sx.

Voice

Vc. I. arco II. *pp*

ppp *p* *mf* *mp* *sfzpp* *sfzpp*

pp *pp* *sfzpp* *sfzpp* *pp* *p* *pp*

pp *pp* *sfzpp* *sfzpp* *pp* *p* *pp*

116 3/16 ♩ = 82 Senza tempo (♩ c. 60)

2/4 ♩ = 70

Senza tempo (♩ c. 60)

3/16

S. Sx.

Voice

Vc. arco m.s.p. gliss. ord. pizz.

sfz *mp* *sfz* *mf* *mf* *pp* *p* *mf* *f*

pp *mp* *sfz* *mf* *pp* *p* *sfz* *mf* *f*

pp *mp* *sfz* *mf* *pp* *p* *sfz* *mf* *f*

121 Senza tempo (♩ c. 60)

3/8 ♩ = 82

2/4

S. Sx.

Voice

Vc. arco s.t. gliss. m. bisb.

ppp *p* *mf* *p* *mf* *p*

ppp *pp* *p* *mf* *p*

ppp *pp* *p* *mf* *p*

煙

Kemuri

for piano and electronics

(2015)

Daniel FÍGOLS-CUEVAS



contact@danielfigols.com

煙

(2015)

kemuri
(smoke)
for piano and electronics

ELECTRONICS DIRECTIONS:

There are two options:

OPTION 1 - Live electronics:

- A cardioid microphone should be installed inside the piano. The signal should be sent to the MaxMSP patch.
- Further details can be found in the patch documentation.

OPTION 2 - Tape:

- The tape version can be reproduced by any means at disposition.
- It is recommended that performer uses the click track provided, starting synchronised with the tape.

Duration 8'15"

to Ilze

煙

kemuri

(smoke)

Daniel FÍGOLS - CUEVAS

2015

for piano and electronics

♩ = 60

0:10

A

0:15

10"

0:20

0:25

0:30

0:35

0:40

0:45

0:50

0:55

1:00

1:05

1:10

1:15

1:20

1:25

1:30

1:35

1:40

1:45

1:50

1:55

2:00

2:05

2:10

2:15

~20"

2:35

2:40

2:45

2:50

r.h. \mathcal{P}

mp

2:55

3:00

3:05

3:10

mp

p

m

3:15

3:20

3:25

3:30

 \mathbf{I}

3:35

:40

3:45

50

3:55

4:00

1

4:

from

11

4:15

4:20

9

4:40

4:50

5:54 5:57 6:00

15^{ma}

pppp *sfz pppp* *sfz pppp* *sfz pppp* *sfz pppp*

6:04 6:07 6:10

(15^{ma})

sfz ppp *sfz* *ppp* *sfz ppp* *sfz ppp* *fff*

accel. molto

E Free, no tempo

6:13 ~7" 6:20 ~7"

15^{ma}

fff

6:28 ~7" 6:35 ~7"

15^{ma}

fff *ppp* *fff*

6:43 ~2" 6:45 ~11"

15^{ma}

fff

6:56 ~7" 7:03 ~8"

15^{ma}

p

7:11 ~7" 7:18 ~7"

15^{ma}

ff *pp* *fff* *pp* *ff*

7:26 ~7" 7:33 ~8"

15^{ma}

pp *ff* *pppp* *f* *pppp*

7:41 ~2" 7:43 ~11"

15^{ma}

fff

7:54 ~25"

8

A-toms

for ensemble

(2016)

for Ensemble Diagonal

Commissioned by Radio France

Daniel FÍGOLS-CUEVAS



contact@danielfigols.com

Instrumentation:

Clarinet in B \flat (Bass clarinet)

Alto Saxophone (Soprano & Baritone)

Percussion:

Vibraphone

Crotales

Bass drum

2 Suspend cymbals (Small and largest possible)

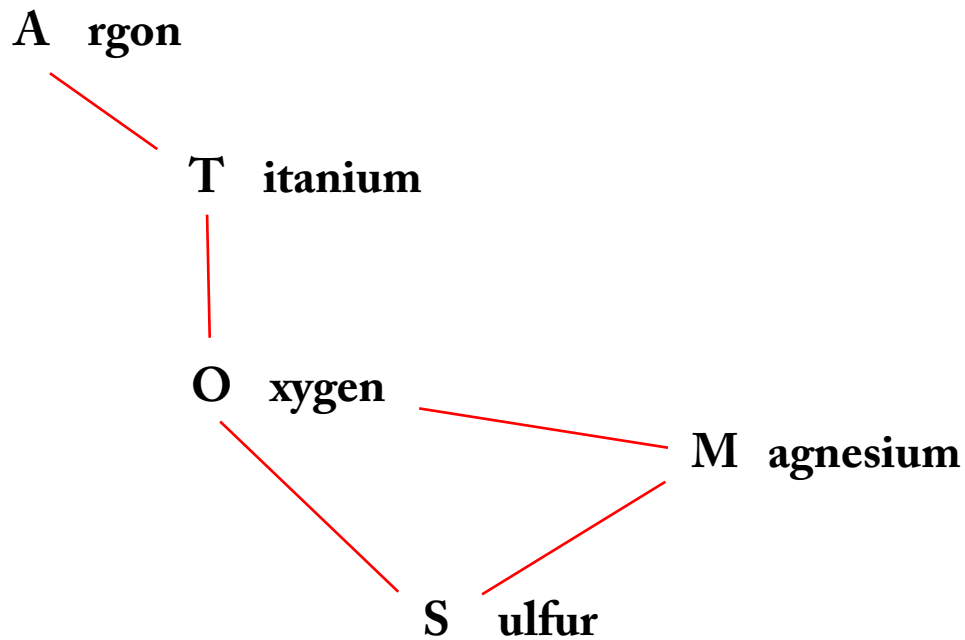
Maracas, Waterphone, Vibraslap and chinese gong

Accordion

Violin

Double bass

Mouvements:



Commissioned Radio France, Alla Breve, for Ensemble Diagonal.

Score in C
Accidentals apply to the entire bar.

to Ensemble Diagonal

A-toms

for ensemble

Daniel FIGOLS CUEVAS
2016

Argon ♩ = 66

4/4

Clarinet (in B_♭)

Alto saxophone (in E_♭)

Percussion

Accordion

Violin

Double bass

slap

pp

mp

pp

mf

bend

mp

p

ff

m.s.p.

s.t.

V c.

port.

mp

p

ff

mp

mf

p

3

4

3

16

Cl.

A. Sax.

Perc.

Acc.

Vln.

Db.

m.s.p.

ord.

m.s.p.

m.s.t.

multiphonic

p

ff

p

ff

mp

ff

p

8 $\frac{3}{16}$ $\frac{3}{4}$ $\frac{4}{4}$ $\frac{9}{16}$

Cl. pp sfz $sfpp$ $sfzppp$ mp pp

A. Sax. pp sfz $sfpp$ $sfzppp$ mp pp p

Perc. \square double bass bow mp pp

Acc. sfz ppp pp pp mp pp

Vln. p sfz $s.p.$ $m.s.p.$ $gliss.$ ppp p ppp

Db. sfz pp mf pp mp pp mp pp

8

12 $\frac{9}{16}$ B $\frac{4}{4}$ $\frac{3}{4}$ $\frac{4}{4}$

Cl. sfz sfz mp sfz sfz sfz $slap$ pp mp pp pp

A. Sax. pp sfz mp sfz sfz sfz $slap$ pp mp pp pp

Perc. \square Maracas \square B.Dr. sfz ppp pp

Acc. sfz sfz ppp sfz ppp

Vln. $sfzpp$ $m.s.p.$ $gliss.$ pp

Db. sfz ppp $gliss.$ pp ppp

12

16 **4/4**

Cl. *pp* *p* *pp* *pp* *p* *pp*

A. Sax. *pp* *p* *pp* *p* *pp*

Perc. B.Dr. *pp*

Acc. *pp* *p* *pp* *p* *pp*

Vln. *sfz* *mf* *f* *sfz* *pp* *sfz* *pp* *gliss.* *ord.* *gliss.*

Db. *mp* *sfz* *p* *sfz* *p* *mp* *sfz* *sfz* *p*

19 **6/16** C **4/4** **3/8**

Cl. *sfz* *sfz* *pp* *mp* *pp*

A. Sax. *sfz* *pp < ff* *mp* *mf* *pp*

Perc. Large suspended cymbal B.Dr. *p* *mf*

Acc. *sfz* *sfz* *ffz* *pp* *ff* *sfz*

Vln. *sfz* *pp < ff* *sfz* *pp* *p* *pp*

Db. *sfz* *pp < ff* *sfz* *pp*

22 **3** **D** **3** **4** **4** **4**

Cl. *pp* *p*

A. Sax. *sfz* *sfz* *sfzppp* *pp* *p*

Perc. *sfz* *sfz* *sfzppp* *pp* *p*

Acc. *sfz* *sfz* *p* *sfz* *p*

Vln. *ord.* *mp* *m.s.p.* *pp*

Db. *ff* *p* *ff* *mp* *sfz* *p*

22

25 **5** **8**

Cl. *pp* *p* *pp*

A. Sax. *pp* *pp* *p* *pp*

Perc. *Vibraphone* *bow* *p* *Reo.*

Acc. *ppp*

Vln. *I.* *II.* *p* *mf* *mp* *f* *mp*

Db. *mp* *mf* *p* *f* *p*

25

28 **E** 4/4 5/4

Cl. *sfz* *sfz* *pp < mf* *sfz* *sfz*

A. Sax. *sfz* *f* *f* *sfz* *sfz*

Perc. *f* *f* *mf*

Acc. *f* *p* *mf > pp* *mf > pp* *mp > pp*

Vln. *pizz.* *f* *sfz* *pp* *mf > pp* *mf > pp*

Db. *pizz.* *sfz* *sfz* *sfz* *pp* *mf > pp* *mf > pp* *mf > pp*

Vibraphone

Reo.

31 **F** 3/4 15/16 2/4 6/16

Cl. *pp* *p* *mf* *sfz sec* *sfz* *sfz > p*

A. Sax. *pp* *p* *mf* *sfz sec* *sfz* *sfz > p*

Perc. *mf* *f* *mf*

Acc. *pppp* *ppp* *sfz* *ff* *sfz > p* *sfz > p*

Vln. *pp* *p* *mp* *ff* *mp* *sfz* *p < sfz* *sfz > p*

Db. *multiphonic III. (.)* *pp* *mp* *ff* *mp* *sfz* *p < sfz* *sfz > p*

Crotales

slap ord.

8va -

6/16 4/4 3/4

Cl. *slap* *pp* *mp* *pp*

A. Sax. *slap* *pp* *mp* *pp*

Perc. *B.Dr.* *mf*

Acc. *gliss.* *ff* *mp* *mf* *p* *bend*

Vln. *m.s.p.* *pp* *pp* *mp* *pp* *s.l.* *m.s.p.*

Db. *pizz.* *arco* *V c.* *multiphonic* *port.* *port.*

35

3/4 3/8 G 4/4

Cl. *pp*

A. Sax. *pp*

Perc. *Crotales* *p* *bow* *p*

Acc. *3* *mf* *f* *ff* *pizz.* *ppp*

Vln. *pp* *gliss.* *pp* *gliss.*

Db. *3* *mf* *f* *ff* *pizz.* *arco* *V c.* *pp* *mp*


38

Titanium

$\text{♩} = 70$

Cl.

A. Sax.

Perc. 

Acc.

Vln.

Db.

(43)

Cl.

A. Sax.

Perc.

Acc.

Vln.

Db.

(47)

51

Cl. *pp*

A. Sax. *p*

Perc. *mf*
ppp 6 6 6 6 *pp* *ppp* 6 *p* *pp*

Acc. *sfzpp* 5 5 5 5 *p* 5 5 5 5 *pp* *mp* *pp*

Vln. *sfzpp*

Db. *pizz.* *p*

51

mfpp 3 6 *pp* 7

pp 3 *mp* *pp*

arco *pp* *mp* *pp* *multiphonic* *pp* *mp*

55

Cl. *pp* 3 *mp* *pp* *pp* *bisb. o* *sfz* *pp*

A. Sax. *pp* 6 6 6 6 *pp* *bisb. o* *p* *sfz* *pp*

Perc. *pp* 6 6 6 6 *mf* *pp* 6 6 6 6 *mp* *pp*

Acc. *pp* 5 5 5 5 *mf* *pp* *sfzppp* 5 5 5 5 *mp* *pp*

Vln. *pp* *I.* *II.* *pp* *mp* *pp*

Db. *pp* *pizz.* *p* *III. arco* *multiphonic* *pp* *mp* *pp* *pp* *arco* *III.* *pp*

55

pp *p* *mp* *pp* *mp* *pp*

(59)

(63) $mp \xrightarrow{\quad} sfz \xrightarrow{\quad} sfz \xrightarrow{\quad} sfz \xrightarrow{\quad} p$

75

Cl.

A. Sax.

Perc.

Acc.

Vln.

Db.

bisb. $\circ \equiv \bullet$

pp

f

p

fff

ppp

f

pp

f

75

79

Cl.

A. Sax.

Perc.

Acc.

Vln.

Db.

(bisb.)

ff

p

ff

f

ff

mf

ff

gliss.

pp

f

p

79

J

82

Cl. *fff* *pppp* bisb. $\circ \equiv \bullet$

A. Sax. *fff* *pppp* *ppp > pppp* *ppp > pppp*

Perc. *fff* *pp* 6 6 6 6 6 6

Acc. *fff* 5 5 3 3 3 3

Vln. (8va) *fffz* *fffz* *fffz* *fffz* *fffz* *fffz* m.s.p.

Db. *fffz* *fffz* *fffz* sim.

86 (bisb.)

Cl. *fffz > p*

A. Sax. (bisb.) *ppp > pppp* *ppp > pppp*

Perc. 6 6 6 6 6 6 3 6 6 6 6 *p* 8va

Acc. *fffz > p* *fffz > p* *fffz > p* *pp* 5 5 5

Vln. *fffz* *fffz* *fffz* *pp* 7 7 7

Db. *fffz* *fffz* *fffz* *pp*

86

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[illegible]

Oxygen

Senza tempo

♩ = 50

3/4

4/4

Cl. (cassotto) $\hat{\sim} 7$

Acc. *pppp*

Vln. II. *mute* $\hat{\sim} 7$

99 *pppp* *ppp* *pp* *pp* *p* *ppp* *gliss.*

103 *ppp* *mp* *pp* *p*

103 *pp* *gliss.* *p* *p* *pp* *p* *ppp*

107 *pp* *p* *ppp* *ffzppp* *ffzppp* *ppp* *8*

107 *pppp* *5* *sfz* *m.s.p.* *ord.* *ppp* *pizz.* *arco* *I.*

107 *f* *pp*

44

34

115

3/4 4/4 3/4 4/4 3/8

Cl. *pp* *mf* *mf* *pp*

A. Sax. *ppp* *mp* *ppp* *mp* *mf* *pp*

Perc. *pp*

Acc. *(pppp)*

Vln. *mfpp* *p* *mp* *ppf* *pp* *mp*

Db. *pp* *p* *mp* *ppf* *pp*

IV. *gliss.*

bowl

119

3/4 4/4 4/4

Cl. *sfz* *mf > pp* *ppp immobile*

A. Sax. *sfz ppp* *sfz ppp* *sfz ppp* *mp* *pp* *p*

Perc. *mf* *3*

Acc. *(pppp)* *ppp*

Vln. *sfz* *f* *sfz* *ppp* *pizz.* *arco* *m.s.t.* *gliss.* *pp immobile*

Db. *sfz* *f* *sfz* *ppp* *pizz.* *arco* *pp immobile*

122

Cl. *<p>pp* *<p>pp* *<p>pp* *<p>pp* *sffz* *mf*

A. Sax. *pp* *ppp* *sffz* *ff*

Acc. *<p>pp* *<p>pp* *<mp>pp* *sffz* *mf*

Vln. *s.p.* *gliss.* *<p>pp* *<p>pp* *<p>pp* *ppp* *sffz* *ff* *pizz.*

Db. *mp* *pp* *sffz* *ff* *pizz.*

122

125

Cl. *<sfz>ff* *ff* *sffz* *sfzpp* *ff* *mf* *pp* *pp* *~ 5-7"*

A. Sax. *sfzpp* *ff* *sfzpp* *ff* *pp* *sffz* *f* *sfzpp* *ff* *mf* *pp* *pp* *~ 5-7"*

Perc. *Vibraphone* *bow* *pp* *ff* *~ 5-7"*

Acc. *sfz* *pp* *sffz* *mf* *pp* *pp* *pp* *pp* *~ 5-7"*

Vln. *arco* *3* *mf* *ff* *pp* *pizz.* *ff* *arco* *3* *sffz* *f* *sffz* *pp* *mf* *pp* *gliss.* *mp* *~ 5-7"*

Db. *s.p.* *pp* *sfz* *pp* *sfz* *sffz* *pp* *mf* *pp* *mp* *~ 5-7"*

125

128

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131

L

Cl.

Sax. S.

Perc.

Acc.

Vln.

Cb.

sfz *p*

pp *mp* *pp* *p* *pp* *mp* *p*

p *pp* *p* *p* *p*

sim.

3 6 5 7

15 15

pp *mp* *pp* *mp*

tr *pp* *pp* *pp*

I. IV. III. 5

IV. III. 5 IV. III. II. IV. 7

III. II. 3 III.

p *mp* *mp* *p* *mp* *p* *mp* *p* *mp* *p* *mp*

I. II. 3

I. IV. III. II. IV. 3

IV. III. III. II. 3

p *mp* *p* *p* *mp* *p* *mp* *mp* *p* *mp*

24

[illegible]

140

2/4 3/8 3/4 5/8

Cl. *sfz* > *p* *sfz* > *p* *pp* *p* < *sfz*

Sax. S. *fffz* *mp*

Perc. *p*

Acc. 15 *mp* *pp*

Vln. *sfpp* III IV. I II 3 III II *p* *p* < *mp* *p* *p*

Cb. *sfpp* II I III I II III *pp* *mf* *p* *p* *mp*

[illegible]

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149

3/8 5/8 3/8 3/16 2/4

Cl.

Sax. S.

Perc.

Acc.

Vln.

Cb.

mp

pp

pp *f* *pp* *sfzpp* *f* *sfpp*

sfpp *sfpp* *p* *pp* *sfz*

sfpp *sfpp* *sfpp* *sfz* *sfz*

sfpp *sfpp* *sfpp*

Crotales

Bellow shake

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[illegible]

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162

4/4

Cl.

Sax. S.

Perc.

Acc.

Vln.

Cb.

sfz

sfzp

sfz

sfzp

sfz

p

Crotale

ff

archet

archet

sfz

sfz

sfz

sfzp

sfzp

p<sfz

sfzp

p<sfz

sfzp

p<sfz

sfzp

p<sfz

sfz>p

sfz

sfz

sfz

164

3
4

4
4

Cl.

pp \triangleleft *p* \triangleright *pp*

Sax. S.

Perc.

Acc.

15

pp

Vln.

III.

tr

gliss.

sfz $>$ *p* $<$ *f*

sfz

sfz *sfz* $>$ *p*

p \triangleleft *sfz* $>$ *p*

(*♩*)

Cb.

arco

III.

multiphonique

sfz $>$ *p* $<$ *f* $>$ *p* \triangleleft *sfz*

mp \triangleleft *mf*

sfz $>$ *p* \triangleright *pp*

(168)

 Grosse Caisse

(172)

176 $\frac{5}{8}$ $\frac{2}{4}$ $\frac{3}{8}$

CL.B. *(p)* *mf > pp* *p* *mf > p* *mp < mf* *p*

Sax. Bar. *sfz* *mf >* *mp*

Perc. *pp* *ppp* *mp > ppp* *pp*

Acc. *sfz > pp* *p* *sfz > pp* *p*

Vln. *p* *p*

Cb. *mf*

180 $\frac{3}{8}$ $\frac{2}{4}$ $\frac{3}{4}$ $\frac{2}{4}$

CL.B. *mf* *ff* *mf* *f* *ff* *f*

Sax. Bar. *ff* *ff* *f*

Perc. *ppp* *pp*

Acc. *<sfz*

Vln. *p*

Cb. *ffz* *mf*

son fendu

flttz.

33

58 S

24

(184)

(188)

68

200 $\frac{3}{4}$ U $\frac{2}{4}$

Cl.B. *gliss.* *ff* *sfz* *mf* *ff* *mp* *f* *mp* *ff* *mf* *ff* *mf* *ff*

Sax. Bar. *gliss.* *mp* *sfz* *p* *ff* *mp* *ff* *pp* *ff*

Perc. *tr* *ff* *pp* *ff* *pp* *ff* *pp* *ff* *pp* *fff*

Acc. *ff* *p* *pp* *ff* *p* *pp* *ff* *p* *pp* *ff* *p* *pp* *ff*

Vln. *sfz* *p* *p* *p* *p*

Cb. *sfzpp* *p*

204

Cl.B. *bisb.* *mp*

Sax. Bar. *mp* *mp*

Perc. *Crotales* *Archet* *15* *ppp*

Acc. *ppp*

Vln. *I c.* *II c.* *pp*

Cb. *III.* *IV.* *mp* *mf*

208

3/4

bisb. o =

CL.B.

Sax. Bar.

Perc.

Acc.

Vln.

Cb.

Waterphone arco

212

2/4

V

5/8

2/4

CL.B.

Sax. Bar.

Perc.

Acc.

Vln.

Cb.

Crotales

Cymbales arco

gliss